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[January 20, 1881.

THE
JOURNAL OF HORTICULTURE,
COTTAGE GARDENER,
AND
HOME FARMER.

A CHRONICLE OF COUNTRY PURSUITS AND COUNTRY LIFE, INCLUDING POULTRY, PIGEON,
AND BEE-KEEPING.

CONDUCTED BY
ROBERT HOGG, LL.D., F.L.S.

Established



in 1848

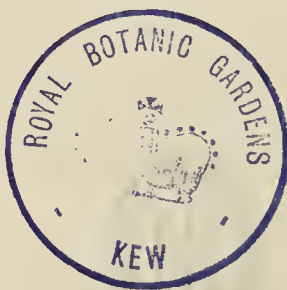
VOLUME I. THIRD SERIES.

JULY TO DECEMBER, 1880.

LONDON:
PUBLISHED FOR THE PROPRIETOR, 171, FLEET STREET.

1881.

LONDON:
PRINTED AT THE JOURNAL OF HORTICULTURE OFFICE,
171, FLEET STREET.



TO OUR READERS.

NEVER since the Journal was established have we received so many letters of approval as during the year that has just closed, and our first duty is to thank the writers of them for their pleasant expressions. A great number of these were consequent on the enlargement of our pages—a change that has proved as welcome to our readers as it has been satisfactory to ourselves. The volume to which the accompanying Index refers contains a hundred pages more than the one preceding it.

Every subject connected with the garden has been treated by competent writers. Nearly every county in England has contributed to the volume; Ireland, Scotland, and Wales are worthily represented, while correspondents from the continent of Europe, America, India, and the Colonies have shared in its completion.

We rejoice in a wide, rich, and sympathetic constituency—in writers as skilful as they are ready to impart information; in readers appreciative; in questioners anxious for information, and in assistants who can answer them usefully.

The opening year is cheerful to us, and the more so that we can record, without any special effort having been made on our part, an unexpected influx of new subscribers. We can only account for this in one way—that those who have benefited by their weekly fare have desired that others should benefit also, and have thus brought the Journal to the notice of their friends.

This friendly generous spirit is much valued by us. The best return we can make is to strive to be even more useful—more ready, if possible, to aid those in difficulty, to employ the means at our disposal to render gardens and other home adjuncts more profitable and enjoyable than they have been before.

How far we shall succeed in our aim and object depends greatly on our friends. In them we trust, and our *thirty-three-years'* experience of readers and writers inspires us with confidence that we shall not trust in vain, and that their aid and our efforts will not be fruitless.

WOODCUTS.

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JULY 1—7.

The following Horticultural Shows will be held during the week:—

1	TH	Shrewsbury (Roses); Richmond; Canterbury (Roses); Tiverton,
2	F	Tunbridge Wells. [Brentwood, and Highgate.
3	S	National Rose Show, Crystal Palace; Southgate.
4	SUN	6TH SUNDAY AFTER TRINITY.
5	M	
6	TU	Oxford (Roses); Maidstone (Roses); Boston. [bledon.
7	W	Fareham and South Hants; Hereford (Roses); Beverley; Wim-

TO OUR READERS.

THE present number is the commencement of an enlarged series of this Journal. Upwards of thirty years ago the *Cottage Gardener* was first published, and received a welcome such as its promoters scarcely anticipated. Designed to popularise horticulture, to impart practical instruction to amateurs, to render gardens more profitable, and other adjuncts of home more enjoyable, it fulfilled its purpose in a remarkable manner. The advance that ensued in the culture of plants, fruit, and vegetables led to a demand for literature of a higher class; this was in due time provided, on the principle that as our patrons had contributed to the prosperity of their favourite periodical they should also share in its advantages: consequently our pages were considerably enlarged.

Nearly twenty years have elapsed since then, and during that period the *Journal of Horticulture* has attained a healthy progressive growth, has found its way into many thousands of homes in our own land, has spread into every important colony of the British Crown and every nation where horticulture is practised and cherished. Recognising this fact, we feel that the time has arrived when our great and almost world-wide constituency should further benefit by that which they have aided to establish, and hence without enhancing the price we again enlarge and improve these pages. As in the past so in the future, we shall not give prominence to subjects essentially speculative and sensational, but shall rather seek to impart information that will be serviceable; and if we can render gardens still more satisfactory to their owners and improve the condition of gardeners old and young we shall be content—our labour will not be fruitless.

Our desire is to see horticulture and all who are engaged in it prosper, and with the continued assistance of our many friends and able coadjutors we hope to have a large share in effecting this object. Believing that what we are justified in describing as a high-class paper, issued at a price within the reach of all who really cherish their gardens, will contribute to the result indicated, we submit the Journal in its present form, in full confidence of securing public approval.

CROSS-FERTILISING AND RAISING ROSES
FROM SEED IN ENGLAND.

R. ELLWANGER, of the firm of Ellwanger and Barry, Rochester, N.Y., who is doing much to elucidate the origin of American and English Roses, having requested information respecting the varieties raised by me, I have been induced to look up what I have effected in that direction; and as Mr. Bennett's recent success in crossbreeding the Rose has created considerable interest in the subject, perhaps even the record of unprofitable work may be of advantage to those who propose entering on the same field. By way of preamble, therefore, my advice to all who desire to do so, is not to carry on their operations without the aid of glass wherever such means are available, for two of the great secrets of success in obtaining Rose seed are ripe wood and a dry atmo-

sphere, conditions not always attainable in England without the aid of glass and artificial heat, and undoubtedly much of my labour was thrown away for want of proper protection against the vicissitudes of our climate, and many valuable acquisitions may consequently have been lost; for as the majority of the best Roses are very double and really botanical monstrosities, this abnormal fulness of petals tends towards decay of the generating organs by retaining surplus moisture.

My first attempt at crossbreeding the Rose was in 1857, when, *inter alia*, I fertilised H.P. Général Jacqueminot with the old white Damask Maiden's Blush. From this cross I obtained a very pretty light carmine variety, remarkably sweet and of good form, but not sufficiently large for a show Rose. I gave the stock some years afterwards to Mr. Ward of Ipswich, who had been working in the same direction, but I do not think he found it good enough to send out. From this start, however, I derived sufficient encouragement to induce me to proceed, and in the seven years from 1858 to 1864 I fertilised, marked, and recorded nearly five hundred blooms, crossing, recrossing, and intercrossing most of the best H.P.'s, Teas, Bourbons, and summer striped Roses of the period; and amongst the more remarkable of the results I obtained a vigorous-growing, semi-double, satiny-pink flowered seedling from T.N. Gloire de Dijon × H.P. Souvenir de Comte Cavour (a bright red Rose), the offspring being a good seed-bearer, the flower almost scentless, and the plant in most respects partaking more of the Hybrid Perpetual than of the Tea character, the foliage and growth showing but little of the latter type. From naturally fertilised flowers of this Rose I have raised seedlings showing more of the Tea blood than their parent, some coming single white and apparently pure Teas, others dark red and very double H.P.'s. By crossing Bourbon Louise Odier × striped Provence old Tricolor, the offspring was a summer Rose with the spring foliage distinctly striped with yellow, the variegation, however, invariably disappearing in the summer as the foliage matured. The flower was pale pink without any appearance of variegation. Many of the blooms fertilised were abortive, and either never set at all or produced hips without seeds, and, as is usually the case, numbers of the seedlings succumbed to weakness of constitution. Not a single Rose, however, of any commercial value or good enough to be sent out came from these attempts. In 1865, however, I determined to make more extended efforts in crossing the Rose, and as a further inducement and encouragement for me to proceed, the York Horticultural Society offered annually a prize for the best English-raised white Hybrid Perpetual Rose. Accordingly in that year I fertilised, marked, and recorded upwards of four hundred blooms, chiefly H.P.'s and Teas, and in 1866, 1867, and 1868 upwards of one hundred more. From amongst the varieties crossed in 1865 I obtained a hep containing seven seeds by fertilising H.P. Madame Vidot × Virginal. One seed only vegetated, and this produced H.P. Princess Louise, a good hardy, creamy-white garden Rose, sometimes tinted pink (sent out by Messrs. Paul & Son). This, however, failed to satisfy the requirements of the schedule of the York Horticultural Society as a white Rose. There is a likeness in this Rose to Mabel Morrison, a bud sport with white flower from Baroness Rothschild. By crossing H.P. Louise Peyronny × Victor Verdier I aimed at getting a flower of the largest size,

and this I secured in H.P. Prince of Wales (sent out by Messrs. Paul & Son), but unfortunately its thinness of petal and want of a stout external guard render the flowers liable to fall open and to appear somewhat coarse. These are the only two fairly good Roses which have, I believe, at present been distributed from upwards of one thousand crosses! but good results have been obtained and will probably be shortly forthcoming from crosses between 1864 and 1868—viz., H.P.'s Comtesse Chabillant × Jules Margottin and Anna de Diesbach; John Hopper × Sénateur Vaisse; Gloire de Santenay × Madame Julie Daran, Prince Camille de Rohan, and Beauty of Waltham; Lord Raglan × Charles Lefebvre and Maurice Bernardin; Jules Margottin × Sénateur Vaisse, François Lacharme, and Bourbon Louise Odier; Charles Lefebvre × Lord Raglan, Sénateur Vaisse, Mons. Boncenne, Prince Camille de Rohan, André Leroy, Alfred de Rougemont, and Madame Furtado; Louise Peyrouny × H.C. Charles Lawson, Victor Verdier, and B. Louise Odier; H.C. Charles Lawson × H.P. Olivier Delhomme; Bourbon Baron de Noirmont × Sénateur Vaisse; Madame Victor Verdier × Charles Lefebvre; La Ville de St. Denis × Marguerite de St. Amand; Mons. Boncenne × Charles Lefebvre, Mdle. Bonnaire (all H.P.'s), and Striped Gallia Village Maid. Some of the offspring of the above crosses have from inherent weakness disappeared, and others which have exhibited more or less novel or valuable traits are in the hands of Mr. Charles Turner of the Royal Nurseries, Slough, who will probably in due course, and when thoroughly tested, introduce them to public notice.

In the course of my operations the anthers only of those flowers were previously removed in which there appeared special risk of self-fertilisation; but cross-fertilisation was generally effected only on such flowers and when in such condition as to be practically safe from self-fertilisation. Since 1868 I have chiefly discontinued the raising of seedling Roses from artificially fertilised flowers, and have devoted my attention to the selection of hips from naturally fertilised flowers of the best varieties only, having long since arrived at the conclusion that by the latter means more certain results may be obtained, especially where good shape and beauty of flower are desired, as the different types of beauty in the Rose are numerous, each being excellent in its own particular character, but when any of these types are combined coarse or heterogenous flowers may be expected to result. Most of our garden Roses have also been so much interbred that there is a great tendency in the offspring to revert to one or other of their ancestral types, rendering the results from cross-fertilisation too precarious and unreliable to be remunerative. Mr. Bennett, however, is opening-up somewhat new ground in crossing the Teas with H.P.'s, and with his appliances, skill, and intelligence all brought to bear, some novel and valuable hybrids ought deservedly to crown his exertions.

It is, however, scarcely credible that such a practical people as the French, who, although they may not always grasp our tastes as readily as they do our purses, but who are at least as prompt and expert in the cross-fertilisation and hybridising of plants and flowers as we are in England, should so universally have neglected to resort to or to continue to use similar means with the Rose unless more certain or remunerative results were otherwise attainable; and I can only arrive at the conclusion that experience has taught our neighbours as it has myself, and I believe others who preceded me in this country (including Mr. Wm. Paul), which is the more profitable mode; and it must not be forgotten that the immense advance which has been made in the garden Rose, especially in the Hybrid Perpetual class, during the last three decades is largely due to French exertions, and has been attained, practically only, by means of self-fertilisation. The following Roses raised by me in 1864 were from seed of naturally fertilised flowers—viz., H.P.'s Annie Laxton from Jules Margottin; Marchioness of Exeter, probably also from the same parent; and Empress of India I believe from Triomphe des Beaux Arts, and not from Louis XIV., of which it appears to be a vigorous prototype. In 1869 I raised H.P.'s Mrs. Laxton, probably from Mdle. Victor Verdier, and Charles Darwin from Madame Julie Daran, this being the dark H.P. Rose of Bourbon blood *par excellence*, of which I sowed the seed in that year. All the above

were sent out by Messrs. Paul & Son. The parentage of H.P.'s Richard Laxton sent out by Mr. C. Turner, and Dr. Hogg in the hands of Messrs. Paul & Son, I regret being unable to identify; but with a large and continually increasing number of seedlings I have found it impossible to keep even the year's results in all cases distinct.

Seedling Roses are very uncertain as to the period of showing their first blooms, some flowering when little more than 2 inches high, and within two or three months from the seed being sown, and others, although often eventually proving good Perpetual Roses, do not show bloom for several years. I have now seedlings of the current year showing bloom. My crop this season consists of upwards of one thousand seedlings grown on a bed containing about 2 square yards; most of these are already planted out, and several of them I hope to bud, bloom, and primarily test before winter. In the ordinary course at least one-half will probably disappear before next year from delicacy of constitution. These I shall not regret, as a winter's exposure will save an immense amount of anxiety and some labour for the care of what would have proved to be only consumptive and sickly progeny. All seedling Roses before being distributed should be fairly exposed during one winter at least, and our race of Roses would eventually become hardier and more vigorous. The practice ought to be a *sine qua non* with all raisers, some discretion being exercised as regards the variety and the situation.—T. LAXTON, Bedford.

TO ENGLISH HORTICULTURISTS.

WE have been requested by the Syndicate of the Ghent nurserymen to publish the following address. We may also mention that the Council of the Royal Horticultural Society have sent an urgent remonstrance to Lord Granville at the Foreign Office, calling attention to the great injury that will be done to the nursery trade if the terms of the Convention are enforced:—

"You are no doubt aware that in order to prevent the invasion of the Phylloxera a Convention was signed at Bern on the 17th of September last, by the Plenipotentiaries from the Swiss Confederation, Italy, Spain, Portugal, Austria, Germany, and France, to the effect that in future all horticultural produce would only be allowed to be imported into the countries in question under certain restricted conditions, one of which stipulated that the roots of all plants must be completely divested of soil, which in fact signifies a total exclusion of plants.

"Italy and Spain, finding the terms not sufficiently stringent to satisfy their requirements, have refused to ratify the Convention and forbidden the importation of all plants; while the Swiss Confederation interdicts the introduction of all horticultural produce coming from countries forming no part of the Convention, even when such sendings are accompanied by a consular certificate, which is deemed an insufficient warrant.

"If these severe measures are maintained or put in force it is evident that they will cause the unavoidable and absolute ruin of many horticultural traders, and inflict a lasting injury on horticultural industry in all countries where it flourishes. No other branch of industry than this requires, in fact, a more vast and wider field for operation; and hence in the presence of such an impending calamity we, the Ghent nurserymen, founded a committee with the object to protect by all just means the interests of our threatened industry. This committee immediately summoned the Belgian nurserymen to a plenary meeting, explaining the gravity of the situation, and a petition to that effect was sent forthwith to the Foreign Office. The Ghent delegates undertook to instigate a public interpellation in the Belgian Parliament; while a special deputation, in order to support the petition and to set off the intense danger threatening the horticultural industry, conferred with the Secretary for Foreign Affairs.

"Notwithstanding all the activity displayed in the matter by the Ghent Committee the last records obtained seem to be unfavourable, more particularly so from Germany, whose frontiers it is said will be closed on or about the 1st of July. This fact is of highest importance, as it may be supposed with some certainty that the other countries engaged in the Convention will act in the same way as Germany.

"The Committee considered the interests put forth forming a part of yours; and the danger menacing the Belgian horticulture will also fetter the progress of your country, therefore thinks it quite essential on your part to take immediate and serious action in order to present a petition to your Government, either through

the medium of a scientific or horticultural committee, with a view of obtaining a modification of the Berne Convention, especially to claim the revision of paragraph iv. article iii., requiring that the roots of all plants must be divested of soil, which is the worst feature of the recently enacted regulations, to prevent the spread of the Phylloxera. "A Government like that of England, a country of first rank for industry and commerce in general, and occupying a great position in horticulture, could do much to stay the danger in view, more especially as it plays a preponderating and influential part in all important questions which eventually must be settled through diplomacy."

"We are sure that if all nurserymen of the countries menaced by the Convention act in a body our just cause would find many sympathetic supporters amongst the influential class, and perhaps ward off the blow dealt against our industry."

"For the Chambre Syndicate of Ghent Nurserymen,

"The President,

"A. VAN GEERT."

COMMON SENSE IN GARDENING.

IN a recent number of the *Journal of Horticulture* of the last volume, page 462, I have been reading an article entitled "Fashion in Gardening" from the able pen of "WYLD SAVAGE," who recommends us to follow common sense rather than fashion in gardening. This is very good advice; but all gardeners, especially when any change of system is adopted, require patience as well as common sense; and if "WYLD SAVAGE" expected by a large and apparently indiscriminate outlay of money one year to reap a glorious display of gay bloom the next, it is not surprising that some disappointment has been the result. There is an old saying, that the difference between a lady and her maid is, that the one uses fashion, the other abuses it; and I think if we lovers of gardens followed the ladies, we might have our gardens as gay and far more beautiful than they are at present.

The objection to the bedding-out system seems to me, not in employing tender plants, nor yet in employing them in masses,—for nearly all flowers look best in quantity—but in sacrificing valuable and picturesque plants to them. As regards the geometrical system, no one who appreciates the beauties of Nature or the smallest affection for his flowers could endure to see his plants with every bloom carefully sheared off and the whole patted level to resemble a gaudy carpet, so I will leave that system out of the list. The herbaceous system on the whole is the most natural, and therefore the best. But we need not follow it blindly. Probably no two gardens are adapted to exactly the same style; the owner's purse, taste and time for gardening, as well as the situation and soil of the garden, are sure to vary.

My own style of gardening I call the woodland style, my aim being to have my garden resemble those very bright little bits of wood that we often come upon when there is a little break in a forest. The expense and trouble are very small, the result being the garden is green and fresh all the winter with Ferns, gay from the earliest spring flowers until July or August. Then I confess to a short interregnum; but in autumn we are bright again. At the present time as I write looking out upon my garden I do not think my list of flowers would equal in number "WYLD SAVAGE'S" despised catalogue, but then they grow in masses. Just opposite as I write is a bank golden with the Welsh Poppy, with peeps here and there under the Poppies of the *Myosotis dissitiflora* still in full bloom, and above all several favourite old Ferns pushing their grand fronds above their surroundings. He calls a *Geum* a poor flower; let him grow masses of *G. cardinalis* and *flore-pleno*, and mix them either with yellow Wallflowers or yellow Poppies, and he will not find his herbaceous borders look dull at this time of the year.

It used to be the fashion to arrange our flower vases with the greatest number and variety of gay flowers that it was possible to cram in, making the whole as level as a child's wool ball; now we employ a third of the flowers, arranged as lightly as we can, with a few Ferns and Grasses to break the level surface, the result being the whole is far more pleasing to the eye, and we can also see each individual flower. Now if, instead of giving up the bedding-out plants we employed them in a similar way, we should find more pleasure and less expense. Plant clumps of the beautiful old-fashioned Ribbon Grass among your flat *Pelargonium* beds, and edge them with *Tropæolum canariense*, or any quick-growing creeper trained over wire hoops bent to form a sort of basket to take off the dead flat, and you will find the *Pelargoniums* look as well again, and moreover the Ribbon Grass will last through the winter and shoot fresh to be ready to enliven the earliest bulbs.

"WYLD SAVAGE" has given us some most enjoyable accounts

of the woods this spring, and after all our best teaching must come from them; and to those whose only Ferns are grown in their own garden, and who rarely see a wood, far less a hill, such descriptions are a real treat, and I wish that by common sense and patience his garden may some day be worthy to compare with the woods.—C. A. K.

GOOD NEW VEGETABLES.

Carters' Defiance Extra Early Cauliflower.—The Messrs. Carter are quite justified in describing this new production as "extra early," it being, in my opinion, the earliest Cauliflower in cultivation. On March 14th last I sowed seed of it in a cold frame. When the plants became large enough to handle they were planted out in rows on a south-east border. They were never protected after being planted out, and the heads were ready for cutting three months after the seed was sown—viz., June 14th. It grows so compact that the plants might stand 1 foot apart without being greatly crowded, and the heads are very firm, pure white, and about 4 inches in diameter. Wherever choice extra early Cauliflowers are valued this variety is the one which should be largely grown.

Suttons' Champion Shorthorn Carrot.—This is the most useful early Shorthorn Carrot anyone can grow. Many are too ready to think when they have one variety of Horn Carrot they have as good as any, and need trouble about no other. This is frequently a mistake, as the varieties vary very much. On February 24th I sowed Suttons' Champion Shorthorn, Early English Horn, Early Nantes Horn, and Intermediate, on a south border. All have grown well, but at the present time the first named has roots double the size of any of the others, being about 4 inches in circumference round the crown, of fine shape and splendid quality.—J. MUIR.

LEEDS HORTICULTURAL SHOW.

JUNE 23RD, 24TH, AND 25TH.

"FINE at York, wet at Leeds," was a remark often heard on the Show ground at Leeds last Wednesday, and it appears to correctly express the character of the weather that usually prevails at the two great annual floral gatherings. At York this year the weather was brilliant on the occasion of the *fête*; at Leeds on the opening day of the Show it was little short of miserable, but it cleared towards evening, when large crowds visited the Exhibition in the Horticultural Gardens. The second day—the "money-taking day"—opened with a downpour, which continued with little intermission throughout the day. This is the more to be regretted, since the Society is in a very great measure dependant on gate money, only a comparatively few of the great and busy town being annual subscribers. It is abundantly clear that if the earnest and hardworking directorate of the Society were supported in a manner at all commensurate with their efforts, that an Exhibition worthy of the town and county would be produced, and Leeds Show would undoubtedly become one of the finest of provincial gatherings.

The Show, as in former years, was arranged in a monster marquee—wide, lofty, and nearly 400 feet in length, for the principal plant classes; and two side tents, one for fruit, Orchids, Roses, &c., the other for *Pelargoniums* and Ferns. Every section of the Show was good; that devoted to groups of plants arranged for effect grand; unquestionably the largest and finest competitive display of the kind ever seen in England. The groups did not, of course, equal in richness the collections of our great nurserymen as exhibited at the principal London shows; but the thirteen cone-like masses of fine-foliaged plants and flowers, arranged with much labour and considerable taste down the centre of the large structure, had a unique effect. The centre of the tent was furnished with specimen flowering plants, which were excellent, arranged on a circular stage, the sides of the marquee being occupied with Fuchsias, Ferns, &c. Grand as this tent undoubtedly was, it is a question if it would not have been still more imposing had a few collections—specimen plants, Ferns, Fuchsias, &c.—been arranged down the centre at wide intervals, the "effect" groups being in the form of semicircles down the sides of the tent. Than of the form indicated no mode of arrangement is more effective and more easily carried out by exhibitors; but whatever the form decided on by committees of shows for groups, it should if possible be stated in schedules.

GROUPS OF PLANTS.—The effect groups, as constituting the chief feature of the Show, demand primary attention. There was an open class for plants not to exceed 300 feet of space, the prizes being £15, £10, and £5; a 150 feet class for amateurs in the county of York, the first prize being a timepiece, value £10, offered by the Mayor of Leeds, Alderman Tatham; and a 100 feet group also for amateurs of the county. In the open class there were seven com-

petitors, the groups being in the form of oblongs, 20 by 15 feet, with rounded corners, the central plants reaching a height of 8 to 12 feet. In this class Mr. Frankland, gardener to J. Barran, Esq., M.P., Chapel Allerton Hall, Leeds, was awarded the chief prize. The centre plant was a fine specimen of *Pandanus utilis*, flanked by Tree Ferns and Palms, and lower down were good pyramid Fuchsias, which stood out clearly from the *Dracenas*, *Crotons*, and similar plants. The front was composed of Zonal and Fancy *Pelargoniums* fully too large, with here and there a new *Colens*, and rising from these some well-flowered examples of *Saxifraga pyramidalis* showed to great advantage. The margin consisted of *Isolepis gracilis*, small Ferns, *Lobelias*, and *Gloxinias*. *Spiræas* were interspersed here and there, and such plants as variegated *Yuccas* and *Jacaranda mimosaefolia* gave effect to this free and cheerful arrangement. Mr. Cypher, Cheltenham, followed with a very tastefully arranged collection of valuable plants in admirable condition, the Palms, &c., in the centre being bright and glossy, the *Crotons* in brilliant colour and elegant. The flowering plants, rather too sparse, consisted of *Anthurium Schertzerianum* very fine, *Dracophyllums*, *Ericas*, a few Orchids, and excellent examples of *Eucharises*, *Kalosanthes*, and *Ixoras*. A few of the plants were fully too formal for this mode of arrangement, but they were admirably relieved by others of graceful habit, and the growth was worthy of its position. Third honours went to Mr. Simpson, florist, Selby, with a fine collection but fully too heavy, and the front plants rather too closely packed and level. Mr. Cole, Withington, Mr. Tudgey, gardener to J. F. G. Williams, Esq., Henwick Grange, Worcester, and Mr. Harrison exhibited well in this class, and that they secured no place in the prize list is demonstrative of the great excellence of the competition.

In the 150 feet class some charming groups were exhibited, and the Judges had the greatest possible difficulty in awarding the Mayor's prize; the coveted honour, however, eventually fell to Mr. Raper, gardener to J. Rhodes, Esq., Potternewton. The central Tree Fern formed a canopy for a grand mass of *Lilium auratum* and *Dendrobium Dalhousianum*; lower down, Ferns, Fuchsias, *Spiræas*, and *Dracenas* were picaesingly associated, the front being composed of some of the newer *Coleuses* and Ferns, relieved with *Saxifraga pyramidalis*, the margin consisting of *Lobelias*, *Abutilons*, and *Panicum variegatum*. A few Orchids here and there had prominent positions, and the group on the whole was bright and elegant. Mr. Tuke, gardener to G. Gelder, Esq., Headingley, was an exceedingly close second, the plants being of superior merit to the others—indeed were in admirable condition. Had some of the *Dracenas* and similar plants been brought nearer the margin they would have added to the elegance of the arrangement, which had just a suspicion of formality and packing, and would have turned the scale in its favour. The centre plant was a very healthy and elegant *Cycas*. Mr. Hemming, gardener to H. Oxley, Esq., Weetwood, was an excellent third—a group that would have won easily three years ago. It was full of good plants rather too closely packed; amongst them the old *Diplacus glutinosus* was in fine condition and “told well.” The centre plant was a *Cordyline*. Mr. Wright, gardener to Grosvenor Talbot, Esq., Southfield, Burley, Leeds, exhibited a most imposing and remarkable group, but much too formal and laboured to meet with the approval of the Judges, the sides being almost as perpendicular as a wall, starting from the base with pans of *Selaginellas* placed on edge. This formal flower building was finely canopied with the fronds of a fine Tree Fern. John Harrison, Esq., St. John's Grove, Leeds, had a very elegant arrangement, and worthy of an extra prize. As an amateur with a very small garden this exhibitor contributed most meritoriously, but was overpowered by those having greater means at their disposal.

In the 100 feet class Mr. Sunley, gardener to Mrs. Smith, Moorfield House, Headingley, and Mr. Goodchild, gardener to Mrs. Naylor, Potternewton, had the prizes in the order named with very creditable collections.

Nearly every collection would have been improved had some of the taller and elegant plants been brought nearer the margin, rising from a groundwork of Ferns and other dwarf flat plants, and so afforded lightness, elegance, and relief that render groups so artistic.

STOVE AND GREENHOUSE PLANTS.—In the large class for twelve plants in flower the two renowned exhibitors, Messrs. Tudgey and Cole, competed. The former put forth his full strength and won. The plants in these collections have been so often seen and described that it were superfluous to further refer to them here. The amateurs' class for six plants was admirably filled. Mr. Tudgey was again in the premier position with splendid specimens; Mr. Lingard, gardener to H. Sampson, Esq., Bowdon, Cheshire, being an excellent second with *Ixora Colei*, *I. coccinea*, *Dipladenia amabilis*, and *Allamanda Hendersoni*, remarkably fine; a very symmetrical *Vinca*, and a rather loose *Phenocoma*. Mr. Tuke was a very close third, *Ixora Fraseri* being splendid, and a *Dipladenia* very good. Mr. Frankland staged well in this class. The class for three plants call for little notice, being mostly irregular. The first prize was awarded for the most equal in size and fresh, exhibited by Mr. Rollisson, gardener to W. Bateman, Esq., Harrogate, followed by Mr. Wright and Mr. Tuke. Mr. Winterbourne, gardener to Thos. Simpson, Esq., Weetwood, staged the best specimen *Erica*, a very good example of *E. depressa*.

Table plants were fresh and clean and well selected as to size, and the prizes went in the following order—first to Mr. Rollisson, second to Mr. Cypher, and third to Mr. Winterbourne.

ORCHIDS.—These were not numerous, but several bright and healthy examples were staged. Mr. Mitchell, gardener to Dr. Ainsworth, Broughton, Manchester, was clearly in the ascendant with *Cypripedium barbatum*, *Calanthe veratrifolia*, *Aërides Dayanum*, *Thunia Marshalli*, a brilliant mass of *Epidendrum vitellinum majus*, and *Phalænopsis Luddemanniana*. Mr. Rollisson, gardener to Walter Bateman, Esq., Harrogate, was a good second with fresh plants, and Mr. Frankland third. Mr. Mitchell was also first in the class for three plants, and Mr. Sunley, gardener to Mrs. Smith, Moorfield House, Headingley, third. Mr. Hemming, gardener to Henry Oxley, Esq., Weetwood, won the chief position in the single specimen class with a superb example *Cypripedium barbatum*, a charming variety admirably grown. Mr. Cypher, Cheltenham, was second with *Saccolabium Blumei* with two fresh and handsome spikes; and Mr. Raper, gardener to J. Rhodes, Esq., Potternewton, third with a large healthy mass of *Aërides odoratum*.

ORNAMENTAL-FOLIAGED PLANTS.—These were very good indeed, Mr. Tudgey winning first honours with a powerful group—grand Palms, and huge well-coloured *Crotons*; Messrs. Cole being a very close second, the group including the finest example of *Croton Disraeli* we have seen; and Mr. Lingard a good third.

Ferns.—For six stove and greenhouse Ferns Mr. Raper won premier honours with a heavy collection, but the plants irregular in size, ranging from a very large *Dicksonia* to the much smaller but admirable examples of *Adiantum gracillimum* and *Leptopteris superba*. Mr. Lingard was an excellent second with large healthy specimens, and Mr. Cypher a good third. In the class for three Ferns Mr. Winterbourne was placed first with a grand *Cyathea princeps*, *Cibotium Schiedei*, and *Dicksonia antarctica*, very good. Mr. Tudgey was an excellent second, and Mr. Eastwood a good third. Mr. Rylance had the first position with a very good collection of twelve hardy Ferns, Mr. Naylor being a good second, and Mr. Hodgson third.

ROSES IN POTS.—The display of these was not large, but highly meritorious. In the class for twelve plants Mr. May, Bedale, was placed first with large flat-sided specimens with moderate blooms; and Messrs. Jackson & Co., Bedale, second with smaller vigorous plants with grand exhibition blooms. Some judges would have reversed this decision. For six plants Messrs. Jackson were first, Mr. May second, and Messrs. Pybus & Son, Monckton Moor, Ripon, third, as they also were in the preceding class. Some of the best plants of Messrs. Jackson in 8-inch pots were nearly equal to the best efforts of Messrs. Turner and Paul.

PELARGONIUMS.—These were very fine, and produced a rich effect; but as the display was almost an exact counterpart of that at York, and fully described last week on page 490, it is only necessary to enumerate the chief prizewinners. For twelve Show varieties (open) Mr. May, Bedale, was a good first; Mr. C. Rylance, Aughton, Ormskirk, second; and Messrs. J. Lazenby & Sons, York, third. In the amateurs' class for twelve plants the first and second prizes were won by Mr. Eastwood and Mr. Winterbourne. There was no card to the third lot. Messrs. Lazenby were first with six French and spotted varieties, Mr. Rylance second, and Mr. May third; and for six Fancies the awards went to Messrs. Rylance, Eastwood, and May in the order named. For six Zonals, single, Mr. W. Winterbourne, Mr. G. Winterbourne, and Mr. Hodgson secured the prizes. Double Zonals were not good, the best being those from Mr. Simpson, Selby, who also had the best golden bicolors; Mr. Banks, Selby, having the best tricolors.

Fuchsias were better than we often see them exhibited now, yet were not in by any means first-class condition. Mr. Eastwood was first with six plants—well-flowered one-sided pyramids, 4 to 6 feet high; Mr. Hodgson being second with some better-furnished specimens, others being weak; and Mr. Wright third. The other classes call for no comment.

Gloxinias.—Finer plants have rarely been exhibited than those staged by Mr. Hodgson, gardener to W. L. Jackson, Esq., Allerton Hall, Leeds, and the varieties were also of great merit. Rev. W. G. Gardner, Heworth, York, was an excellent second with varieties of more drooping habit, but large and fine; and Mr. Backhouse, gardener to Dr. Gott, The Vicarage, Leeds, was an excellent third with large healthy plants, but small flowers. Seedling cut flowers from Mr. May were highly commended for their good form and rich and varied colours.

Pans of bedding plants were admirably exhibited by Mr. Simpson, Selby; Mr. Hodgson being second, and Messrs. Lazenby third. The plants as grown in pans 2 feet in diameter had a fine effect.

Ageratum The Queen, exhibited by Mr. Simpson, New Lane, Selby, was awarded a certificate. It is very dwarf and floriferous, the flowers being good and nearly pure white—a very promising variety for bedding purposes.

Mr. B. S. Williams contributed an attractive feature to the Show—namely, a long table of choice and rare plants from the Holloway Nurseries; had more of such plants as these been employed in the groups they would have contributed much to their richness and decorative merit.

FRUIT.

Collections.—Only one collection was staged in the special class of four dishes, but it was a good one, by Mr. Clayton, gardener to J. Fielden, Esq., Grimston Park, Tadcaster, and consisted of a splendid Queen Pine, good Black Hamburgh Grapes, with A Bec Peaches and Violette Hâtive Nectarines. Mr. Clark, gardener to the Marquis of

Ripon, Studley Royal, was placed first in the class for six dishes with splendid Golden Champion and very good Black Hamburg Grapes, a very large Blankney Hero Melon, splendid Castle Kennedy Figs, and good Royal George Peaches. Mr. Clayton was an extremely close second with a superior Queen Pine, fine Muscat and good Black Hamburg Grapes, well-coloured Violette Hâtive Nectarines, a Melon, and rather small Peaches. Mr. Westcott, The Gardens, Raby Castle, was placed third. Dr. Hogg Peaches were fine in this collection, but over-ripe. In the class for four dishes Mr. Clark was again first with Black Hamburg Grapes, Scarlet Perfection Melon, Golden Rathripe Peaches, and Lord Napier Nectarines, all in admirable condition. Mr. Clayton was second, his Pine and Grapes being very good; and Mr. Wallis, gardener to Sir H. M. Thompson, Kirby Hall, Leeds, a close third, Grapes and Cherries being excellent.

Grapes.—The display of these was highly creditable to the several exhibitors. In the class for two dishes Mr. Wallis had the premier position with splendid examples of Buckland Sweetwater and excellent Black Hamburgs. Mr. Westcott was second with well-ripened but not large bunches; and Mr. Thompson, gardener to J. Padgett, Esq., Transfield Lodge, Guiseley, third with larger but less ripe bunches. There were eight competitors. Mr. Johnson, gardener to Messrs. Noble & Ridsdale, Boston Spa, was first in the class for a single dish of Black Grapes with very large and fine examples of Black Hamburg; Mr. Meredith, gardener to W. H. Gott, Esq., Armley, Leeds, being second with smaller bunches of splendid quality, Mr. Wallis being an excellent third. Eight very good dishes were staged in this class. In the corresponding class for white Grapes Mr. Wallis was far ahead of his rivals with Buckland Sweetwater of faultless appearance; Mr. Taylor, gardener to Sir Henry Ripley, Bart., Acacia, Apperley, second with large but not quite ripe Muscats; and Mr. Sunley, gardener to Mrs. Smith, Moorfield House, Headingley, third with the same variety, large but unripe. Mr. Johnson and Mr. Wallis had the prizes in the heaviest-bunch class with large and well-finished Black Hamburgs.

Pines.—The prizes for Pine Apples went in the order named to Mr. Clayton with a splendid Queen; Mr. Faulkner, Woolton Hall Gardens, Liverpool, a good Smooth Cayenne; and Mr. S. Taylor. The Queen Pines staged by Mr. Clayton deserve a special note of approval; they were the finest fruit we have seen this year at any show, being excellent alike in size, shape, and condition.

Peaches and Nectarines.—Peaches were very good indeed. Mr. Faulkner easily won chief honours with superior examples of Belle-garde; Mr. Purdy, gardener to J. T. Leather, Esq., Leavenhorpe Hall, being a good second; and Mr. Sutton, gardener to H. Bentley, Esq., Eshald House, third. In the Nectarine class Mr. Wallis, Mr. Sutton, and Mr. Puzey, gardener to W. H. St. Quintin, Esq., Rillington, York, had the prizes in the order named, all exhibiting well. Mr. Faulkner had the first prize for Figs with a good dish of Panachée. The first prize for Melons was awarded to Victory of Bristol, a fruit of splendid quality with no exhibitor's name attached; Mr. Clark being second with Rauceby Hall, also of superior quality. Strawberries, except the first dish of Dr. Hogg exhibited by Mr. Clarke, were not noteworthy.

CUT FLOWERS.

Messrs. E. Cole & Sons, Withington, Manchester, were easily first with a grand stand, the bunches consisting of Allamandas grandiflora, nobilis, and cathartica, two Ericas, two Aphelexes, three Ixoras, Francisca calycina major, Hoya carnosae, Eucharis, and Dipladenia amabilis. Mr. Rollisson, gardener to Walter Bateman, Esq., Harrogate, had the second prize. For twelve cut flowers the competition was close. Mr. Lingard, gardener to H. Samson, Esq., Bowdon, Cheshire, was placed first with a beautiful stand containing Cattleya Mossiæ, Aërides Dayanum, Dracophyllum gracile, Ixora javanica, Erica Denisoniana, and Anthurium Schertzerianum. Mr. Faulkner was an excellent second, and Mr. Sunley third. Good stands of Zonal Pelargoniums were also exhibited.

Bouquets.—These were much better than are often seen at exhibitions. Mr. Rylance was awarded the first prize for a prize bouquet, and Mr. Cypher second, but the latter was the favourite with the ladies, being less crowded than the other; and Mr. Wright, gardener to Grosvenor Talbot, Esq., Birley, Leeds, was first with a ball bouquet. Table decorative stands were elegant, but not superior.

Roses.—The display of these was very good, the best that were staged up to the date this year. In the class for forty-eight blooms the Cranston Nursery Company well won the first position, Etienne Levet, Avocat Duvivier, La Rosière, E. Y. Teas, Sénateur Vaisse, Marie Baumann, Ferdinand de Lesseps, and Duc de Wellington being in remarkable fine condition. Mr. May, Hope Nurseries, Bedale, was second, many of the blooms having evidently had the shelter of glass and were good. The same exhibitors occupied similar positions in the class for thirty-six blooms. In the amateurs' class for twelve blooms the celebrated cultivator, Mr. T. Jowitt, The Old Weir, Hereford, was an excellent first, staging among others grand blooms of Mons. Noman, Beauty of Waltham, Le Havre, Etienne Levet, and La France, relieved by attractive blooms of Madame Caroline Kuster, Belle Lyonnaise, and Maréchal Niel. Mr. Eastwood, gardener to F. W. Tetley, Esq., Weetwood, was second with smaller blooms. Mr. Jowitt was far in advance of other competitors with twelve blooms; and for twelve Teas the Cranston Nursery Company were the only exhibitors with a stand containing some charming blooms.

Amongst the miscellaneous exhibits we notice skeletonised leaves from Mr. Kaye, Didsbury, Manchester; waterproof plant labels, very useful for nurserymen, from Messrs. Fisher, Clark, & Co., Boston; tubular boilers in various sizes, strong and good, from Mr. Harlow, Macclesfield; and a very light well-constructed span-roof house and frames from Messrs. R. Halliday & Co., Middleton.

The tents during the greater period of the Show were like a quagmire, and Mr. Billborough's efforts were taxed to the utmost to render them passable. Horticulturally speaking, the Show was the finest ever held in Leeds, and had the weather been favourable would unquestionably have been financially successful, whereas under the circumstances it is expected the loss incurred will not be less than £400—a most unfortunate result for the excellent Committee and Secretary, who have laboured with untiring assiduity in producing a Show worthy of their great town and county. With true Yorkshire pluck, we understand they have decided, if possible, to have a supplementary Show in August, and it is strongly hoped that subscriptions will be forthcoming to meet present deficiencies, and add to the reserve fund that is already organised.

STRAWBERRIES AMY ROBSART AND PIONEER.

OF the early Strawberries tried this year at the Experimental Garden Dr. Roden's Amy Robsart has proved itself the finest early, ripening at the same time as Black Prince. It is of larger size and better in flavour and colour than Vicomtesse Héricart de Thury or any other early variety. Amy Robsart has a good deal

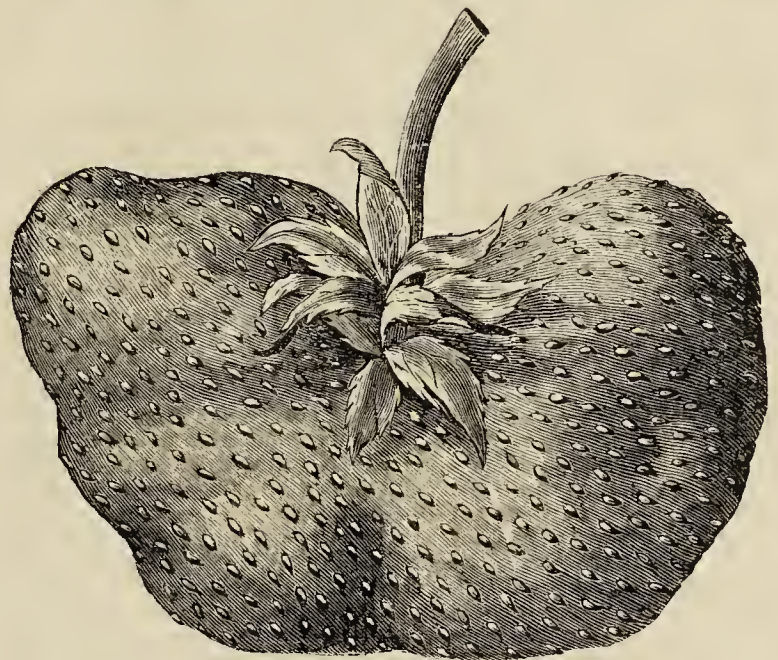


Fig. 1.—Laxton's Pioneer.

of the Pine in it, and Dr. Roden informs me that it was raised by crossing Lebreton's Marguerite with the Scarlet Pine, and is an excellent first early forcer. The plant appears to be of good constitution, and although a continuous bearer does not throw so many small fruits as Vicomtesse. I was somewhat unexpectedly surprised at the remarkable pre-eminence exhibited by Amy Robsart as an early variety, it not being heralded here with any flourish of trumpets, that I wrote to Dr. Roden asking if I had the true variety, and he at once sent me the verification. As Dr. Roden does not submit his seedlings to the judgment of the Royal Horticultural Society's Fruit Committee, but waits for public recognition until the merits of his novelties have become patent, it is probable that Amy Robsart is not so well known as it deserves to be. I can unhesitatingly recommend it as a first early variety.

My own Pioneer (first-class certificate Royal Horticultural Society, and sent out by Messrs. Veitch) is the largest and finest of all the early varieties, immediately succeeding Amy Robsart, and I think will be found a great advance on Keens' Seedling. From many quarters I hear it is rapidly gaining in favour both as a garden, market, and forcing Strawberry. I send you a fruit gathered a few days after the first of Amy Robsart, weighing 1 oz. 5 drachms, and exactly 3 inches in diameter. This and all my Strawberries are growing on ground which has not been manured for at least three years, and the whole crop is very promising. Some of the rows dressed with Clay's fertiliser show very decidedly that this preparation is a powerful and permanent stimulant. There is a Strawberry, received from Messrs. Ellwanger & Barry, of Rochester, N.Y., raised by Mr. Durand, also named Pioneer. It has also a great reputation in the United States as an early variety, but it has not yet fruited with me.

The foliage, however, seems distinct from my own variety. About one hundred varieties, including the best of the American and continental varieties, are on trial in the garden.—T. LAXTON, *Bedford*.

KINGSTON AND SURBITON HORTICULTURAL SOCIETY.—JUNE 23RD.

THE sixteenth annual Exhibition of this Society was held on Wednesday in last week at the Recreation Grounds, Surbiton. The Exhibition was a very fair one, and well maintained its position in comparison with former years. Perhaps in a few classes there was a slight falling-off, but the spirited competition in the other classes more than compensated for that. The schedule comprised of seventy-six classes, forty of which were open to nurserymen and professional gardeners, ten to amateurs not employing a gardener, and twenty to cottagers, while ten more were special classes, the prizes being offered by the Members for the county and residents in the neighbourhood.

Store and Greenhouse Plants.—In the class for nine flowering plants Mr. Hinnell, gardener to F. A. Davis, Esq., Anglesea House, Surbiton, exhibited a specially good collection; and in the class for six Mr. Attrill, gardener to J. C. Freake, Esq., Bank Grove, Kingston; Mr. Child, gardener to J. Gray, Esq., Claygate; and Mr. Croxford, gardener to Mrs. Dunnage, Allbury House, Surbiton, were placed in the order of their names, all showing well and evenly matched collections. There were several competitors in the class for a single specimen flowering plant, the prizes being offered by Sir Trevor Lawrence, Bart. Mr. Hinnell taking the first prize for an excellent plant of *Genetyllis tulipifera*; Mr. R. Watson, gardener to T. H. Bryant, Esq., second for a noble example of *Anthurium Schertzerianum*; and Mr. Crafter, gardener to Rev. Mr. Finch, Kingston Hill, third for a well-bloomed Heath.

Ornamental-foliage Plants.—Amongst the best of these were some most excellent examples of *Caladiums* exhibited by Messrs. Gregory, Child, and Luff, who were placed first, second, and third respectively for large robust plants some 4 feet through and well coloured, especially the first-prize collection. Large Palms, &c., were staged by Messrs. Crafter and Attrill, who had the premier prizes. Table plants were represented by eight collections, the first prize falling to Mr. Gregory; the second to Mr. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher; and the third prize to Mr. Brand, gardener to W. Clay, Esq., Elm Villa, Kingston, the Hon. Secretary to the Society. All the collections were very good. Several collections of six distinct varieties of *Coleus* were exhibited, but with a few exceptions they were only moderately well coloured. The special class for a group of decorative plants, flowering and foliage, arranged on the turf in the space of 100 square feet, brought six collections, all of very high order of merit. The prizes in this class were offered by the President, H. Harrison, Esq.—first prize, four guineas; second prize, three guineas; third prize, two guineas; and fourth prize, one guinea. Mr. Beckett was deservedly awarded the first, Mr. R. Watson the second, Mr. Attrill third, and Mr. Luff the fourth; and the Judges, to mark the superiority of the other collections, awarded extra prizes to the other two competitors, Messrs. Croxford and Buckland. The classes for *Pelargoniums*, *Fuchsias*, *Achimenes*, *Gloxinias*, and *Begonias* were mostly well filled, the whole of which were in high order with the exception of the *Fuchsias*. Several collections of both exotic and British Ferns were staged; Messrs. Hinnell, Crafter, Attrill, and J. Watson being the principal exhibitors.

Cut flowers and table decorations were numerous exhibited, especially the latter. Mrs. Clay was the most successful competitor, obtaining the premier prize in the classes for three stands, single stand, and the best floral cross. A capital collection of twenty-four Roses came from Mr. Mace, Teddington, who received the first prize, while Mr. Moorman, gardener to Miss Christy, was placed second, and Mr. Luff third. There were several other collections, but scarcely any of the Roses had attained their usual condition. There was not a large display of fruit, but it was of excellent quality. Vegetables were numerous, and seldom have we seen finer contributions from cottagers so early in the season.

The executive had the advantage of a very fine and cheerful day, which induced a large and fashionable company to patronise the Exhibition, and thus enabled the Society to pay all demands and to carry over a balance towards next year's Exhibition.

BULBS AND BEDDING.

As my bulb or spring garden must be turned into a bedding garden with as little delay as possible, and as I do most of the work myself with the help of a young gardener who has his vegetables, Vines, and greenhouse plants also to attend, perhaps my experience may be of use to other lady gardeners in the same predicament. This favourite bedding garden consists of four serolls, or S's cut in a long belt of grass, with round or pin-cushion beds between. In these round beds (there are twelve of them) are dwarf standard Roses, with the centre shoot upright and the side shoots pegged down over the bed. These beds are bordered in spring with *Seillas* and *Crocuses*. The seroll beds

are about 2—4 feet wide and 48 feet long. Two of them I have made the last two winters into what I call bouquet beds, and the effect has been so good that I think in similar beds it might be adopted. I filled them with clumps of Tulips, ten in each clump or cluster, with a space of 18 inches apart. The Tulips in one bed were white (*La Candeur*) and scarlet (*Rex Rubrorum*), and there was a narrow edging of *Golden Feather*. The other bouquet bed was similar, except that it had yellow in it, each third clump being that magnificent double yellow Tulip called *Yellow Rose*. Some people thought the white and scarlet had the best effect, others admired the mixture of gorgeous gold. In each way the effect was pleasing, and the interval of brown earth between each bouquet gave additional brilliancy to the colours. Of the other two beds, one I filled with Tulips of every shade of pink, crimson, and deepest red, using principally (as I happened to have them) *Cardinal*, *Gris de Lin*, *White Swan*, *Rose Gris de Lin*, *Proserpine*, *Purple Crown*, *Roi Cramoisie*, *Rembrandt*, &c. No yellow was allowed to appear in this bed. The fourth was mixed Tulips, every colour, with a good sprinkling of *Chrysolora*. This bed had an edging of Beet, the dark crimson purple of which helped to bring out and harmonise with the gay colours of the Tulips.

These beds kept the grass garden a brilliant patch of colour from early in March (I had plenty of *Van Thols* in the greenhouse) until quite the end of May, when my real labour began. I took up each Tulip (the flower stems having been first cut off) with as large a ball of earth as I could take with it, and then moved them all as carefully as possible to some shallow trenches I had made for them in the kitchen garden; there I left them covered over with a sprinkling of earth until a few days ago, when I found that, thanks to the dry sunny weather we have had, the foliage was all withered and the bulbs quite ripe—fine, large, heavy and healthy they are—my sole trouble being that I have too many of them, and shall certainly not have space for more than half of them next year.

As soon as the bulbs were removed the gardener dug the beds over, adding a little fresh soil. As they were well manured before the bulbs are planted there is no necessity for adding any more now; the earth is merely turned up roughly a few days, and then settled for the bedding plants. In one seroll I have *Vesuvius Pelargonium* with *Pyrethrum* border; the next is Beet with a border of *Lobelias*. Then comes *Victoria* or *Bouquet Aster*, with border of *Golden Arabis*, and then again Beet with *Stachys* border. The beds already look quite furnished, the *Vesuvius* plants being so healthy and full of buds that already the seroll is a brilliant scarlet ribbon. The *Asters*, however, will not be in for some time. By so managing there is really not more than ten days or a fortnight of unsightly bare beds; and as I do the greater part of it myself, with a little weeding boy to carry the bulbs, &c., not liking to take the gardener from more important work, I think it might encourage those who, like myself, have not an army of gardeners under command, to have a spring as well as a summer garden.

I prefer Tulips because they are more easily managed than Hyacinths, and, unlike Hyacinths, they do not deteriorate but increase and really improve. I have always a few Hyacinths, principally those that have done duty in pots the previous year, but they are in another part of the garden, for I think the gayer colours of the Tulips overpower the more tender and delicate hues of their less flaunting cousins.—B.

LEE AND BLACKHEATH HORTICULTURAL SOCIETY.

JUNE 23RD AND 24TH.

THE annual Exhibition of this vigorous and successful Society was held on the above date in its usual position—namely, a large field, the property of Mrs. Penn, The Cedars, Lee. The exhibits were very numerous, occupying two large tents and two of smaller size, the quality being generally much above the average, and the arrangement most tasteful and effective. The competition was keen in most of the principal classes, the result being a highly satisfactory display. The Secretary, Mr. C. Helmer, is deserving of much credit for the efficient manner in which the whole Exhibition was conducted, and we regret that our space will only admit a brief record of the winners in the several classes.

Stove and greenhouse plants were fresh and generally well flowered. Mr. J. Smith, gardener, Eagle House, Eltham, obtaining the chief prize with eight specimens, including a neatly trained *Bougainvillea glabra*. Mr. Jeffery, gardener to J. Young, Esq., Blackheath Park, occupied a similar position with four plants. The collections of twenty-four plants were excellent, Mr. Reeves, Lee; Mr. Beck, gardener to J. H. Young, Esq., Old Road, Lee; Mr. Steward, Blackheath; and Mr. Smith, all exhibiting handsome well-grown specimens.

Pelargoniums formed a fine display in one of the tents. The principal exhibitors were Mr. Martin, Mr. Beck, and Mr. Jeffery, who

gained the chief prizes for twelve, six, and four Show varieties respectively. Other exhibitors in the classes for Zonal, Fancy, and Bronze varieties were Messrs. Reece, Davis, Beacham, Lambert, and Sholdice, who staged very fair examples of well-selected varieties. Gloxinias, Fuchsias, Calceolarias, and Begonias were numerous and good, many of the exhibits already mentioned taking prominent positions.

Ferns were uncommonly healthy, both the exotic and hardy species and varieties. Messrs. Reece, Shrubbs, Bristow, Lambert, and Chappell received the chief awards for neat collections. Fine-foliaged plants were also well represented, classes being devoted to Caladiums, Palms, and Begonias. Messrs. Beck and Lambert exhibited very successfully, Messrs. Bristow, Shrubbs, and Martin also taking substantial honours.

Fruits and vegetables were fairly numerous, and indicated excellent culture. Grapes were especially noteworthy for their good finish, Messrs. Beck, Wright, Buckman, and Bristow staging the best examples and gaining the chief prizes. Mr. Jeffery and Mr. Rainbird were the two of the best exhibitors of vegetables.

In the vegetable and fruit tent Messrs. J. Laing & Co., Forest Hill, had a large and elegant group of plants, including numerous specimens of three fine Tuberous Begonias flowering very freely.

HERBACEOUS PLANTS.

I QUITE agree with "WYLD SAVAGE" in some of his statements on fashion in gardening. Where there is a large place there portions may be kept severely for each style, but I do not any more see why we of the middle class are for ever to be aping those above us. If "my lord" has gone in for ribbon, carpet, and mosaic bedding, there is no valid reason why the parson and the doctor are to follow suit; and if "Sir John" chooses to have an herbaceous garden, and to keep stately plants of that character, that in no way debars me from having half-hardy things in my mixed borders, and to seek for enlivenment in Pelargoniums, Calceolarias, and showy annuals. But I do not understand how, after his enormous outlay, "WYLD SAVAGE" can only enumerate those few plants. Why, I am looking on a clump of *Papaver orientale* you might see half a mile off; then I have a group of *Cypripedium spectabile*, worth all the bedding plants that could fill my garden. Where are his double purple and single Rockets? Has he no Lilies of the dauricum and pomponium type, no Delphiniums with their stately spikes, no rich floriferous double and single Pyrethrums, no Campanulas or Fraxinellas, no Anthericums or Veronicas? And so I might go on naming a host of plants. "WYLD SAVAGE" complains of not knowing what to buy. I can only say I have seen very reliable lists in the Journal during the present year.

I do not think that up to the end of June a border purely of herbaceous plants ought to be dull. It will not, and never can be, glaring; but bright it may be, and assuredly ought to be, and "WYLD SAVAGE" is to be commiserated if he has had his terraces so dull as not to please "madame." He does not do things by halves, and I am sorry to find that, as with his Roses so with his herbaceous plants, he has to write vanity and vexation of spirit.—VIOLETTA.

IRISES.—No. 10.

IN the same section with and closely allied to the species last described are the two now referred, both of which merit a place among the hardy plant collectors' *protégés*. They are old garden plants, and were known to such writers as Parkinson, Gerarde, Lobel, and others of the sixteenth and seventeenth centuries, and consequently take rank among what may be termed the historical species.

The one represented in the annexed engraving (fig. 2) is *Iris graminea*, the grass-like Fleur de Lis, so named from the character of its foliage, which is long and narrow. The plant is not quite so attractive as many of its relatives, and yet there is a pleasing neatness in the form and coloration of the flowers that render it worthy of consideration. In Miller's "Gardeners' Dictionary" is a clear and lucid description of the species, which was as follows:—"This has narrow, flat, grass-like leaves about a foot long, of a light green colour; between these arise the stalk about 6 inches high, having two narrow leaves much longer than the stalk. Flowers two or three, small; the petals (standards) have a broad yellow line with purple stripes; the three falls are of a light purple colour striped with blue, and have a convex ridge running along them; the others are of a reddish purple variegated with violet; they have a scent like fresh Plums." This description very truthfully represents the plant, except that it does not remark the beautiful veins and streaks on the falls, which constitute the chief attraction of the flower. Gerarde grew the plant in his garden, and published a figure and description of it in the

"Herball," under the name of *Chamaeiris tenuifolia*, and he states that "the floures are in shape and colour like those of the stinking Gladdon but much lesse." It is extensively distributed over the central and southern portions of Europe, and thrives in almost any soil and situation provided it be not too dry.

Iris siberica is a near ally of the above, and like it was well known to the old writers. This is also grown commonly at the present time, few gardens possessing a collection of Irises with any pretensions to completeness being without it or some of its



Fig. 2.—*Iris graminea*.

varieties. The typical form, which is well figured in the first volume of the "Botanical Magazine," is extremely pretty, the flowers being of moderate size, compact, with erect purple narrow standards, and rounded falls of a white ground colour delicately veined with blue. In subsequent volumes of the same work two varieties have been represented, one with white flowers, the other, named *Sanguinea*, a very distinct variety with large rich purplish blue flowers and reddish foliage. It appears in "Parkinson's Paradisus" of 1629 as "*Iris angustifolius major caerulea*, the greater blew flower de luce, with narrow leanes," and bears, as the author says, "diuers flowers successively flowering one after another, and one like unto the flowers of the bulbous flower de luces, but of a light blew colour."

About a dozen named varieties of *Iris siberica* are now in commerce, some departing considerably from the type in their flowers,

but all agreeing in habit. Some of the most attractive are the following:—*Grandiflora*, flowers large, of an intense blue shade; *Lactea*, creamy white; *Pallida*, ground colour pale blue, netted with white; *Altissima*, dark blue, with lighter veins; *Alba*, white with pale purple markings; *Plena*, deep blue, a late-flowering variety. All are equally easy of culture, succeeding under most adverse circumstances even in clayey soil, and, being quite hardy, they may be safely grown in any border without protection. —L. C.

NOTES AND GLEANINGS.

WE learn that the MAIDSTONE ROSE CLUB will hold their Exhibition in the Concert Hall at Maidstone on the 6th inst. In addition to the usual prizes a silver challenge cup, value £12, will be offered for the best box of eighteen Roses. This cup will be retained by the winner of the year, and becomes the property of the exhibitor who gains it three times, not necessarily in succession. A challenge cup valued £5 will also be offered by the Members of the borough for the best ornamental device consisting of Ferns and Roses. The terms relating to the winning of this cup are similar to those of the one previously mentioned, but only the winners of the first and second year can compete in the third. Silver and bronze medals are offered by the National Rose Society, and Mr. B. R. Cant of Colchester contributes three prizes.

— A SALE of peculiar interest to botanists and antiquarians took place last week when the TURRET HOUSE ESTATE, South Lambeth Road, was disposed of by auction for building purposes. Turret House was formerly the residence of the noted John Tradescant, gardener to Queen Elizabeth, whose son served James I. in the same capacity, and his grandson was similarly employed by Charles I. It was on that estate the celebrated collection of plants and curiosities was formed which was subsequently transferred to Elias Ashmole, and is now at Oxford under the name of the Ashmolean Museum.

— WE have received from Messrs. Vilmorin, Andrieux, and Cie., of Quai de la Megisserie, Paris, a number of flowers of their choice strain of CARNATIONS. They embrace almost every conceivable shade of colour, and are very beautiful, being perfectly double and of a hardy constitution. This strain of Messrs. Vilmorin's house enjoys a very extended and old reputation, and we believe may be obtained through any seedsman in this country in the original sealed packets direct from Paris.

— WE recently observed in Messrs. Backhouse's nursery at York an uncommonly fine display of *ODONTOGLOSSUM VEXILLARIUM* with flowers of extraordinary size. Several handsome varieties were represented, the most remarkable being *picturatum*, *giganteum*, and *floribundum*, some of the flowers were $5\frac{1}{2}$ inches long by 4 in width, of beautiful form and great substance. One spike had no less than a dozen similarly large flowers, and the effect produced by a fine bank of plants all flowering profusely was most attractive. This beautiful Orchid is now frequently seen in grand condition at the chief horticultural exhibitions, but rarely are such fine examples staged as those referred to above.

— MESSRS. J. CARTER & Co., High Holborn, have now on view in the Royal Botanic Society's Gardens their usual fine EXHIBITION OF ANNUALS, which are in excellent condition, a very large number of species and varieties being represented. These attractive plants are now attracting some of the attention they deserve, and the above collection affords a good opportunity to intending growers of making a selection of the most ornamental.

— IN a communication we have received from Tweedside in the district where the extremely LOW TEMPERATURE of 17° below zero was recorded last winter, our correspondent writes—"I have not an Apple or Pear on my ninety trees in the orchard, and on the walls only one, two, or three. Many of the old Apple and

Pear trees have died in the orchard here; and close to Swinton House I saw rows of old Oaks probably one hundred years old without any appearance of vegetation. It has been a dreadful winter, but at Hope Park with the exception of one Peach tree and one Apple tree I have escaped with a little scorching. There is no fruit anywhere."

— MESSRS. HOOPER & Co. of Covent Garden inform us that they have obtained several hundred plants of *SELAGINELLA LEPIDOPHYLLA*, which is termed the "Resurrection Plant," and is well known to possess peculiar hygrometric properties, similar to the Rose of Jericho. The old dry plants have all their fronds rolled inwards so as to form a brown ball-like object. When placed in water the fronds speedily commence unrolling, and in the course of several hours they are unfolded, the inner surface being green, and the specimen thus appears to be a living plant. The one submitted to our inspection was immersed in water for more than twenty-four hours before it was fully expanded, and when removed from the water about the same time was occupied in returning to its former condition. It is, however, not only a curiosity, but like other species of similar rosulate habit, living plants form pretty little tufts of dark green fronds, and may be grown in pots in an ordinary fernery.

— THE handsome variegated Coral Tree, *ERYTHRINA MARMORATA*, was exhibited by Messrs. J. Veitch & Sons at South Kensington on Thursday week in excellent condition, when a first-class certificate was awarded for it. The leaves are large, green, finely marbled with white, and render the plant very distinct and valuable for decoration.

— J. MCINTOSH, Esq., Dunevan, Oatlands Park, Weybridge (gardener, Mr. Taylor), exhibited at the last meeting of the Royal Horticultural Society, as recorded in our report, a plant of *LILIUM POLYPHYLLUM*, an extremely rare species, and has flowered very few times in this country. The flowers were large, of a greenish white colour, the inner part of the perianth being spotted and streaked with purple. It is not one of the most beautiful Lilies, but is interesting for its rarity. It is found in the Himalayas.

— IN the House of Commons the IRISH POTATO DISEASE Committee is now engaged in investigating the causes of and possible remedies for the destructive fungus *Peronospora infestans*, the ravages of which are so severely felt in Ireland and elsewhere. Although a definite solution of the difficulty cannot be expected, yet we may confidently look for some advance in that direction if the matter is carefully and thoroughly examined.

— WE have had upon our table for the past month an umbel of *ALLIUM MOLY*, which has only just expanded the last of its flowers. It has not been placed in water once during the whole of that time, and yet the flowers have continued expanding, apparently deriving the necessary support from the substance of the peduncle, which is very fleshy.

— AN extremely handsome member of the Iris order is now flowering in the herbaceous ground at Kew—namely, *XIPHION TINGITANUM*, one of the beautiful bulbous section, of recent introduction. It has narrow leaves and large imposing flowers of a rich purplish blue colour, with rounded falls of great size.

— DR. R. BRAITHWAITE is now publishing his monographs of the different families of Mosses, under the title of "THE MOSS FLORA." The work is well illustrated by plates of all the species, and microscopical analyses of their parts.

— WE learn that with the view of forming a PARK FOR CROYDON the Board of Health have purchased 7 acres of land, which is about to be laid out in an ornamental manner. The total cost is estimated at £14,000.

— AMONG the numerous beautiful Larkspurs two of the

finest are DELPHINIUMS BRUNONIANUM and BELLADONNA. They both have large and well-formed flowers, the former being of a rich bright clear blue, and the latter of an exquisite light blue tint that can scarcely be rivalled.

— A DAILY contemporary states that Dr. C. W. Siemens has found an economic use for the ELECTRIC LIGHT in the cultivation of fruits and flowers, and he is now about to put down a steam engine at his country residence, which will at once supply the hot water to warm them, and the light to bring them to a speedy maturity. The engine will, at the same time, be employed to cut wood and chaff, to mince food for the cattle, and to do much of the other work of the farm, and then, by charging the engine with the remainder of the expense for furnishing light at night, Dr. Siemens expects to be able to prove that electricity may be used with advantage in growing fruit, flowers, and vegetables.

— A CORRESPONDENT referring to the FLOWERS IN VICTORIA PARK observes, that "Gay as is the long herbaceous border there at the present time, yet where it had one admirer last Sunday night the carpet beds so artistically designed and tastefully planted had at the least a hundred; it were therefore equally reasonable for any 'one-idea' man to denounce this form of garden decoration as for an Irishman to quarrel with his English neighbours for considering there is other food fit to eat besides Potatoes."

— WE have received from Messrs. W. E. Brown & Sons, the Nurseries, Wells, Somerset, a DOUBLE SEEDLING PETUNIA which they have raised this season. It is of unusual size, measuring 8 inches over. It is rich purple in colour, the central petals being contorted, forming a loose ball. It is a remarkable flower, but more curious than beautiful.

— A PARTICULARLY beautiful border plant at this time of year is LYCHNIS FLOS-JOVIS, and when thriving, as it will in almost any ordinary garden soil, it bears large, very bright rosy pink flowers in great profusion. The plant is moderately compact in habit, with woolly leaves, and forms a remarkable contrast to the brilliant *Lychnis chalcedonica*.

— M. ERNST of Caracas has recently published some interesting observations upon the fertilisation of *COBÆA PENDULIFLORA*, which confirm the opinion expressed by Sir Joseph Hooker in the description accompanying the figure of the plant in the "Botanic Magazine" ten or twelve years ago—namely, that the flowers seemed structurally adapted to ensure cross-fertilisation. The corollas have narrow greenish petals 4 or 5 inches in length, the stamens having similarly long filaments, which are at first curiously twisted, but are ultimately bent outwards from the centre of the flower, thus removing the anthers to a considerable distance from the stigma. The anthers have been found by M. Ernst to burst and liberate the pollen early in the evening, after which nectar is copiously secreted around the base of the ovary. The fertilisation is effected by several species of nocturnal moths, which visit the flowers and convey the pollen on their wings. There appears to be an inherent unfitness for self-fertilisation, as the experiments made by M. Ernst to accomplish this proved ineffectual. Living plants of *Cobæa penduliflora* were sent to Kew by this gentleman, and one flowered in the Palm house in 1868.

HELLEBORE POWDER VERSUS CATERPILLARS.

HAVING noticed in the Journal, on pages 317 and 454 of the last volume, directions for destroying the Gooseberry caterpillar, and being much troubled with the pest, which appears to be almost divesting our bushes of their foliage, I resolved to give the directions a trial. As I have a large number of bushes, also trees trained to walls 9 feet high, and not being possessed with great patience, I adopted a somewhat different mode of applying the hellebore powder. In the one case I employed a garden syringe in place of a whitewash brush, and in the other a cheesecloth

(straining) instead of muslin. I have much pleasure in stating the result of the first dressing is most satisfactory—thousands of caterpillars lie dead under the bushes.

Allow me to ask if the fruit will be injured by the hellebore. I saw a thief busy to-day, and although I should be glad to know she was punished, I should be sorry to see her under the bushes with the caterpillars.—R. R. GODFREY, *Grantham*.

P.S.—I have bees in my garden, and they are often upon the Gooseberry bushes; will hellebore have the same effect upon them as upon the caterpillars?

ROYAL HORTICULTURAL SOCIETY.

JUNE 29TH.

THE Rose Show of the Society and the Exhibition of the Pelargonium Society were as last year held in conjunction, and fortunately under the most favourable conditions as regards the weather. The exhibits, too, were numerous for the miscellaneous collections. Roses, Pelargoniums, and vegetables entirely filled a tent 500 feet in length. A few plants were staged in the Council-room, but one of the most pleasing and artistic features of the Show were the groups from Mr. H. Cannell of Swanley, which were arranged in the vestibule. The plants were arranged on two long parallel tables leading from the entrance to the Council-room, the back row being formed of dark blue Delphiniums, the centre of Tuberous Begonias, and the front margin of *Herniaria glabra*, in which were dotted plants of the variegated *Polemonium caeruleum* and *Lobelias* alternately. Baskets of Pansies, Sweet Williams, and extremely fine Verbenas were also arranged at the ends, the general effect being most satisfactory. A gold medal was deservedly awarded for these artistic groups.

ROSE SHOW.

A large number of collections were staged in the eleven classes devoted to cut Roses, and the majority were distinguished by more than usual excellence. A charming freshness was generally evident in the blooms, the colours bright and clear, and many exceptionally handsome blooms were included in some of the collections. In the nurserymen's class for forty-eight single trusses there were five entries, the chief prize going to the Cranston Nursery and Seed Company, King's Acre, Hereford, for a collection of extremely fresh and even blooms. The most noticeable were Général Jacqueminot, grand; John Stuart Mill, fine; La France, good; and Marie Baumann, fine. Messrs. Curtis, Sanford & Co., Torquay, were second with a good collection, but not quite so neat. Mr. F. Cant, Colchester, was a good third with twenty-four triplets. Messrs. Cranston were again first, staging a very handsome collection. The following were the varieties:—Etienne Levet, Madame La Baronne de Rothschild, Exposition de Brie, La France, Le Havre, Madame Lacharme, La Rosière, Mons. Noman, Hippolyte Jamain, Mons. E. Y. Teas, Marquise de Castellane, Fisher Holmes, Madame Chas. Wood, Marguerite de St. Amand, Mdlle. Marie Cointet, Prince Camille de Rohan, Mons. G. Tournier, Madame Noman, Général Jacqueminot, Madame Marie Finger, Miss Hassard, Princess Beatrice, and Maurice Bernardin. Messrs. Curtis, Sanford & Co. were second, and Messrs. Keynes & Co., Salisbury, third, both exhibiting collections nearly equal in merit. Messrs. Cranston, Curtis, and Kimmont & Kidd, Canterbury, were first, second, and third respectively with twenty-four single trusses, all fresh and bright. Messrs. Cranston had a very fine premier collection of twelve single trusses. Messrs. Kimmont and Kidd and Keynes & Co. following with fair blooms, but rather weak in one or two points.

The amateurs showed remarkably well. In the principal class for twenty-four trusses there were five entries. R. N. G. Baker, Esq., Heavitree, Devon, obtained the chief honours with a handsome collection, including grand examples of Auguste Rigotard, La France, Duchesse de Caylus, Mdlle. Marie Rady, and Mons. E. Y. Teas. T. Jowitt, Esq., Old Weir, Hereford, was an excellent second, his Alfred Colomb being admirable. A. J. Waterlow, Esq., Great Doods, Reigate (gardener, Mr. Browne), followed with neat specimens. Out of seven exhibitors of twelve triplets Mr. Baker staged the finest and freshest blooms; Marie Baumann was very handsome, Auguste Rigotard neat, Charles Lefebvre fine, Docteur André fine, and Mons. Etienne Levet in excellent form. T. Jowitt, Esq., was second, Exposition de Brie, Mons. E. Y. Teas, and Mdlle. Marie Cointet being well represented. G. P. Hawtry, Esq., Aldin House, Slough, was third with creditable blooms. J. B. Haywood, Esq., Reigate (gardener, J. Ridout), Mr. Jowitt, and the Rev. E. J. Fellowes, Wimpole Rectory, Royston, were first, second, and third with twelve single trusses, and extra prizes were awarded to J. H. Pemberton, Esq., The Round House, Havering-atte-Bower, and Mr. Baker. In the class for twelve Tea or Noisette Roses Mr. Fellowes obtained the chief prize with a neat collection; C. Davies, Esq., The Grammar School, Banbury, and Messrs. Cranston being second and third, Mr. Hawtry securing an extra prize. The six exhibitors in this class all staged fair examples of some of the best varieties in cultivation. The principal prizetakers in the classes for six Hybrid Perpetuals and six Teas or

Noisettes were Messrs. Baker, Curtis, Cranston, and J. Davis, Esq., The Square, Wilton.

In the class for six new varieties of Roses of 1877-8 Messrs. Cranston obtained the chief award with Gaston Levêque, a large finely formed Rose of a rich crimson hue; Leon Renault, good form, very bright red, full; Madame Gabriel Luizet, light crimson, neat; Souvenir d'A. Thiers and Constantin Fretiakoff, somewhat alike in form and of a deep rosy crimson; and Marchioness of Exeter. Mr. G. W. Piper, Uckfield, was second with Mdle. Marie Verdier, Souvenir de Madame Robert, John Fraser, Barthelemy Joubert, and Oxonian. Messrs. Curtis & Co. were third with Penelope Mayo, Boieldieu, Cannes la Coquette, Mdle. Marie Verdier, Marie Louise Pernet, and Barthelemy Joubert.

MISCELLANEOUS EXHIBITS.—Several groups and collections were staged which attracted much attention. Among these the herbaceous plants from Messrs. Barr & Sugden were especially noteworthy, a silver-gilt medal being awarded. Mr. H. Hooper, Bath, obtained a silver Banksian medal for a collection of Pansies and Carnations. Messrs. Pearson of Chilwell contributed a fine group of Pelargoniums, for which a silver Banksian medal was awarded. Mr. Aldous, South Kensington, obtained a bronze Flora medal for a group of plants; Messrs. Carter & Co. a silver Flora medal for a large group of annuals; and Messrs. F. & A. Smith for a collection of Pelargoniums. A group of Pelargoniums from the Society's garden was also staged, and in the Council-room were some new plants from Mr. Bull, Chelsea. In the grounds Messrs. Foster & Pearson again exhibited examples of their frames.

The only exhibitor in the class for nine Tuberous Begonias, in which the prizes were offered by Messrs. Laing & Co., Forest Hill, was J. S. Law, Esq., South Lodge, Southgate (gardener, Mr. Tong), who was awarded the first prize.

SPECIAL PRIZES FOR VEGETABLES.

A fine lot of vegetables were staged in these classes, the competition with one exception being very keen. For the prizes offered by the Messrs. James Carter & Co. for fifty pods each of Carters' Stragem, Culverwell's Telegraph, and Carters' Telephone Peas brought together five collections of these exceptionally fine varieties. The first prize was well won by Mr. J. Muir, gardener to C. R. M. Talbot, Esq., M.P., Margam Park, Taibach, South Wales, with magnificent pods, large and well filled; the second prize was awarded to Mr. J. Richardson, Boston, Lincolnshire; the third prize to Mr. G. T. Miles, gardener to Lord Carington, Wycombe Abbey, Bucks; the fourth to Mr. R. Phillips, gardener to Capt. Jackson, The Deodars, Meopham, Kent; and the fifth to Mr. W. Iggulden, gardener to Capt. D. Wingfield, Orsett Hall, Romford, the exhibits in each instance being of great merit.

Nine exhibitors responded to the offer of prizes by the Messrs. Sutton & Sons, Reading for twelve dishes of vegetables, the competition being very close indeed. The kinds were stipulated, but the varieties were left to the option of the exhibitors. Mr. G. Miles secured the premier award with excellent Nantes Horn Carrots, Early White Naples Onions, Canadian Wonder Beans, Seville Longpod Broad Beans, Culverwell's Telegraph Peas, Tender and True Cucumbers, Walcheren Cauliflowers, Wilmot's White Cos Lettuce, and good dishes of Munich Turnips, Pine Apple Beet, Victoria Cabbage Lettuce, and Improved Lapstone Kidney Potatoes. Several of the collections staged for the remaining prizes followed very closely on the premier collection, the Judges experiencing considerable difficulty in awarding the prizes, and as a matter of course did not entirely please all the competitors. The second prize was awarded to Mr. G. W. Meads, gardener to Viscount Barrington, Beckett Park, Shrivenham, who staged among others good dishes of Nantes Horn Carrots, Improved Lapstone Potatoes, Italian Tripoli Onions, Leviathan Broad Beans, and Duke of Connaught Cucumbers. Mr. Haines, gardener to the Earl of Radnor, Coleshill House, Berks, followed, his collection including good Seville Longpod Beans, Nantes Horn Carrots, and Suttons' Improved Telegraph Cucumbers. The remaining prizes were awarded to Mr. J. Muir, Mr. W. Iggulden, and Mr. J. Austen, gardener to Sir G. Smythe, Ashton Court, Bristol, in the order named. The latter exhibitor staged a wonderfully fine dish of Giant Rocca Onions.

Messrs. Webb & Sons' (Wordsley, Stourbridge) prizes were offered too early in the season, which accounts for there being two competitors only. The prizes were for six kinds of vegetables, which include Webb's Triumph Pea (a main crop variety), and Webb's Banbury Onion. In addition to the stipulated varieties Mr. Iggulden staged good dishes of Woodstock Kidney Potato, Early London Cauliflower, Trophy Tomatoes, and Nantes Horn Carrots, and was awarded the first prize. Mr. W. Crump, gardener to the Duke of Marlborough, Blenheim, secured second honours with creditable dishes of Hathaway's Excelsior Tomatoes, Webb's Perpetual Bearer, International Kidney, and Early London Cauliflower, in addition to the stipulated varieties.

The prizes offered by Messrs. Webber & Co., fruiterers, Covent Garden, for the best packed boxes of fruit, to consist of one box of Grapes, one of Peaches, and one of Strawberries, were obtained by Mr. W. Crump, gardener to the Duke of Marlborough, Blenheim Palace, Woodstock, and Mr. J. Wallis, gardener to the Rev. Walter Sneyd, Keele Hall, Newcastle, Staffordshire, in the order named, both with very careful examples of packing, the fruit having arrived in excellent condition.

THE PELARGONIUM SOCIETY'S SHOW.

The display of Pelargoniums was extremely good, all sections being well represented. Show, Fancy, and Zonal varieties were staged in considerable numbers, the competition in several of the classes being close. The new varieties were also especially fine, many of exceptional merit being exhibited. The schedule enumerated twenty-three classes, the first eight being devoted to new varieties not yet in commerce, and each class was in three divisions, a single prize being offered in each. From nine to nineteen were appropriated to specimens, and the remaining four classes to cut blooms.

The following were the chief exhibits in the classes for new Pelargoniums:—*Show Varieties.*—No prize was awarded in Class 1. In Class 2A, for three distinct Show varieties, Mr. C. Turner, The Royal Nurseries, Slough, was awarded the first prize. His varieties were Hector (Foster), symmetrical flower, bright salmon lower petals, very dark upper, with a lighter margin, and clear white eye; Maid of Perth (Foster), very fine flowers, rosy lower petals, distinct white centre, and very dark upper with narrow margin; Mountain of Light (Foster), flowers of moderate size, bright scarlet, and dark blotch in upper petals. In Division B, for two specimens, Henry Little, Esq., Hillington Place (gardener, Mr. G. Wiggins), was first with Ruth Little and Formosa, both of Jackson's raising; the former of a clear rosy colour, and the latter with creamy lower petals, the upper petals in each being very dark. In Division C, for one variety, the Rev. A. Matthews, Gumley, Market Harborough, was first with Sir W. Scott (Matthews), a fine flower with intensely dark upper petals and salmon scarlet lower petals, the flower being of good form. In Class 4A, for three, including market and regal varieties, Messrs. J. & J. Hayes, Edmonton, were first with Mr. John Hayes, Mrs. John Hayes, and Lady Isabel, all very floriferous varieties, and of good habit. In Division B Mr. Little was first with Bridesmaid and Rosy Morn, both of Jackson's raising; the former very attractive, with fine trusses of flowers; the lower petals white, and the upper veined and marked with crimson. In Division C Mr. C. Turner gained the first prize with Macbeth (Foster), a very distinct variety, flowers of great size, salmon hue, petals blotched in the centre, and very dark upper petals. Mr. Turner was the only prizetaker with three new Fancy Pelargoniums—viz., Queen of the Hellenes, Jenny Howlett, Lady Hardy, all very neat and distinct. *Zonal Varieties.*—In Class 5, Division A, Dr. Denny was first with Lalla Rooke, fine scarlet, immense trusses; Prima Donna, an exceptionally handsome white; Cynthia, fine magenta, neat flower and truss, habit dwarf. In Class 6A, for double varieties, Messrs. Saltmarsh & Sons, Chelmsford, won with Mrs. Arthur Lattey, fine pink, large truss; and Lord Cecil, handsome scarlet. In Division B Mr. Turner had a neat variety, named Kensington, with white flowers and yellow foliage; and one named Nancy Lee, with scarlet flowers and variegated foliage. Mr. H. Cannell staged the only new Ivyleaf variety, one of Sisley's raising, named Beauté de Lyon. The flowers were large, of good form, and somewhat of a scarlet tinge.

In the classes for specimens the exhibits were numerous. With six Show varieties Mr. Little was first, staging very symmetrical plants. Mr. C. Turner was second with smaller specimens, but bearing handsome flowers; Victory was especially noteworthy for the size and colour of the blooms. Mr. F. Hunt, York Lodge, Stamford Hill, was third with well-grown plants, but bearing few flowers. Mr. Turner was first with eighteen Show varieties, his collection included a good selection. Mr. Little and Mr. W. Meadmore, Romford, followed with fair specimens. Mr. Little staged the best collection of nine decorative varieties, the specimens being exceptionally fine, Kingston Beauty and Duchess of Edinburgh flowering grandly. Mr. C. Turner followed with plants bearing fine trusses but somewhat uneven. Third, Messrs. J. & J. Hayes with good plants. The prizes for eighteen Show varieties were obtained by Messrs. J. & J. Hayes and Mr. H. Little. Among the Fancy varieties Mr. C. Turner obtained the chief position with six plants remarkably well flowered. The Jewess, The Shah, and Princess Teck were fine. Mr. H. Little took the second position with handsome specimens; and Mr. Hodgson, The Elms, Hampstead (gardener, Mr. J. Weir), was third.

The Zonals were very fine. In the class for nine Mrs. Lermite, Finchley (gardener, Mr. J. Catlin), obtained the premier position with good specimens over 4 feet in diameter, and bearing numerous trusses of flowers; Fanny Catlin, Lizzie Brooks, Mrs. Pearson, and Ellen were very handsome. Dr. Martineau, Esq., Clapham Park (gardener, Mr. J. Weston), was second with inferior plants, and Mr. W. Meadmore third. Mr. Catlin, Mr. Little, and Mr. Meadmore received the prizes in the class for eighteen specimens. In the class for nine double-flowered Zonals Mrs. Lermite was awarded the premier prize for symmetrical well-flowered specimens. G. Simpson, Esq., Wray Park, Reigate (gardener, Mr. J. King), and Mr. W. Meadmore being second and third respectively. Mrs. Lermite was first with eighteen double Zonals; Mr. J. Balaam, Vine Nursery, Lower Clapton, second; and Mr. W. Meadmore third.

The cut blooms were remarkably fresh and good, some of the trusses being of enormous size and the colours brilliant. Show varieties were well shown by Messrs. Turner, Saltmarsh, and Meadmore, who gained the chief prizes. Zonals were grandly exhibited by Mr. H. Cannell, his collections attracting great attention; and other prize-winners in that class were Messrs. Saltmarsh, Meadmore, Mr. G. Duffield, gardener to H. K. Mayor, Esq., Winchmore Hill, and Mr. J. Dixon, Christchurch Lodge, Hampstead. Double-flowered varieties were well shown by Dr. Denny and Messrs. Saltmarsh; the only

collection of Ivy-leaved varieties being from Mr. George, gardener to Miss Nicholson, Putney Heath.

Certificates were awarded for the following varieties—To Dr. Denny for a double Zonal variety named *Enchantress* (Denny), with large trusses of pink flowers and of good habit; for the single Zonal *Ulysses* (Denny), a handsome variety with symmetrical blooms in compact trusses, of a brilliant scarlet colour; *Progress* (Denny), a double Zonal of a rich scarlet shade, very neat flowers and good habit; *Prima Donna* (Denny), a handsome white Zonal variety, with flowers of excellent form and great substance. To E. R. Foster, Esq., Clewer Manor, for a Show variety named *Constitution* (Foster), with blooms of the most exact symmetry; the lower petals of a pale salmon pink hue, a white centre, and intensely dark maroon upper petals with a

narrow margin; *Minotaur* (Foster), somewhat resembling the above, but with darker lower petals. To Henry Little, Esq., for an attractive decorative variety, *Bridesmaid* (Jackson). It was extremely floriferous, the blooms being slightly crimped; the lower petals white, and the upper light crimson; truss large, and habit compact. *Hayes' Seedling* (Hayes), a decorative variety, with very large flowers of a bright soft pink colour relieved by a small blotch in each petal. *Criterion* (Jackson), very free in habit; flowers of good form, colour rich scarlet. To Mr. W. Brown, Hendon, for a decorative Pelargonium *Eclipse* (Brown), truss very compact; flowers of a pale cerise or pinkish tinge blotched with a deep tint. To Messrs. J. & J. Hayes for a decorative variety *Mrs. Ashby* (Hayes), very attractive; upper petals extremely dark; lower pink, clear white centre. To Messrs. Salt-



Fig. 3.—MR. J. DOMINY.

marsh & Sons for the double Zonal *Lord Cecil* (Saltmarsh), a grand variety with enormous trusses of brilliant scarlet flowers.

MR. JOHN DOMINY.

AFTER a term of forty-three years in the service of one firm Mr. Dominy seeks the repose that he so well merits. The event of his retirement from an active and singularly successful term of labour is appropriate for presenting to our readers a portrait of this skilful and indefatigable worker in the cause of horticulture. To hundreds of our readers the features will be familiar, and thousands more in this and other lands will be glad to see a portrait engraving of one whose name is a household word to them, but with whom they have necessarily not been brought in contact.

The following brief biographical notice of Mr. Dominy will not be without interest at the present time. He was born at Gittisham in 1816, and in due time was apprenticed to Mr. Guscott, gardener to the Misses Putt, Pomeroy House, Gittisham, Devon. At eighteen

years of age—namely in 1834, he went to Messrs. Lucombe, Pince, and Co.'s nursery at Exeter, and remained there three months; from thence he removed to Messrs. Veitch's nursery in the same town, and remained there until June, 1841. He then went as head gardener to J. Pellagor, Esq., Redruth, and remained in that capacity four and a half years. During that time he took between seventy and eighty prizes for fruit, vegetables, and flowers. He returned to Messrs. Veitch's, Exeter Nursery, working in conjunction with the late Mr. James Veitch until his removal to London, and he remained at Exeter with Mr. James Veitch, senr., twelve years. During his stay at the Exeter Nursery he commenced his first attempts at the hybridisation of *Nepenthes* and *Orchids*, the results of which have now become so widely known. In 1864 he removed to London to take charge of the Royal Exotic Nursery, Chelsea, and from this great firm, which he has served so faithfully and so well, he proposes to retire during the ensuing month.

On Mr. Dominy leaving Exeter he was presented with a silver tankard and cream jug, value £20, by the Devon and Exeter Horticultural Association, "in acknowledgment of his valuable

services to the Society during his connection with Messrs. Veitch," who also presented him with a cream jug to match "in commemoration of his having been the first successful hybridiser of *Nepenthes* and *Orchids* in Europe." He also holds the large silver medal of the above Society "for his perseverance and success in raising the first hybrid *Orchid*," this medal being dated 1858, and refers to *Calanthe Dominii*, the result of a cross between *C. masuca* and *C. furcata*. But it will be well to present in tabulated form the results achieved by this assiduous worker which we have obtained from him; the names to which asterisks are attached indicate the plants raised, those above and below being the parents:—

<i>Calanthe masuca</i>	<i>Goodyera discolor</i>
* <i>Calanthe Dominii</i>	* <i>Goodyera Veitchii</i>
<i>Calanthe furcata</i>	<i>Anætochilus Veitchii</i>
<i>Phajus rand folius</i>	<i>Nepenthes distillatoria</i>
* <i>Phajus irroratus</i>	* <i>Nepenthes hybrida</i>
<i>Calanthe vestita</i>	<i>Nepenthes</i> , spotted species from Borneo, unnamed
<i>Cattleya guttata</i>	<i>Cattleya (Lælia) crispa</i>
* <i>Cattleya hybrida maculata</i>	* <i>Cattleya Devoniensis</i>
<i>Cattleya intermedia</i>	<i>Cattleya guttata</i>
<i>Limnæodes rosea</i>	<i>Cattleya granulosa</i>
* <i>Calanthe Veitchii</i>	* <i>Cattleya hybrida</i>
<i>Calanthe vestita</i>	<i>Cattleya Harrisoniæ</i>
<i>Cattleya Loddigesii</i>	<i>Nepenthes distillatoria</i>
* <i>Cattleya Brabantia</i>	* <i>Nepenthes hybrida maculata</i>
<i>Cattleya Aclandiae</i>	<i>Nepenthes</i> , spotted species from Borneo, unnamed
<i>Cypripedium barbatum</i>	<i>Cattleya maxima</i>
* <i>Cypripedium vexillarium</i>	* <i>Cattleya Dominiana</i>
<i>Cypripedium Fairrieanum</i>	<i>Cattleya amethystina</i>
<i>Cypripedium Pearcei</i>	<i>Nepenthes Rafflesiana</i>
* <i>Cypripedium Dominii</i>	* <i>Nepenthes Dominii</i>
<i>Cypripedium caudatum</i>	<i>Nepenthes</i> , green species from Borneo, unnamed
<i>Cattleya Mossiæ</i>	<i>Cattleya Mossiæ</i> (Syn House vars.)
* <i>Cattleya Manglesi</i>	* <i>Cattleya exoniensis</i>
<i>Cattleya Loddigesii</i>	<i>Lælia purpurata</i>
<i>Cypripedium barbatum</i>	<i>Cattleya (Lælia) crispa</i>
* <i>Cypripedium Harrisianum</i>	* <i>Cattleya Sidniana</i>
<i>Cypripedium villosum</i>	<i>Cattleya granulosa</i>
<i>Cattleya Aclandiae</i>	<i>Aërides affine</i>
* <i>Cattleya quinquecolor</i>	* <i>Aërides hybridum</i>
<i>Cattleya Forbesii</i>	<i>Aërides Fieldingi</i>
<i>Cattleya (Lælia) crispa</i>	<i>Dendrobium nobile</i>
* <i>Cattleya (Lælia) Pilcheri alba</i>	* <i>Dendrobium Dominii</i>
<i>Cattleya (Lælia) Perrinii</i>	<i>Dendrobium moniliforme</i>
<i>Cattleya (Lælia) crispa</i>	<i>Cattleya labiata</i>
* <i>Cattleya (Lælia) Pilcheri</i>	* <i>Lælia Veitchiana</i>
<i>Cattleya (Lælia) Perrinii</i>	<i>Cattleya (Lælia) crispa</i>
<i>Cattleya maxima</i>	<i>Cattleya crispa</i>
* <i>Cattleya Dominii alba</i>	* <i>Cattleya (Lælia) Felix</i>
<i>Cattleya amethystina</i>	<i>Cattleya Regnelli</i>
<i>Goodyera discolor</i>	<i>Cattleya Dowiana</i>
* <i>Anætochilus Dominii</i>	* <i>Cattleya Dominiana</i>
<i>Anætochilus xanthophyllus</i>	<i>Cattleya Exoniensis</i>
<i>Fuchsia serratifolia</i>	
* <i>Fuchsia Dominii</i>	
<i>Fuchsia spectabilis</i>	

Such a record needs no comment, and it fully justifies us in bestowing a meed of honour on a man who has proved by his works that he so well deserves it. He has set a worthy example, and we know there are many others working earnestly in the same cause and who will win public approval of their services.

Many will join us in the hope that Mr. Dominy will live long in the esteem of a host of friends and enjoy the rest to which he is so justly entitled.

ANTWERP ROSE SHOW.

THE schedule of the Antwerp rosarians has been kindly sent to me by the President, M. Lenaerts, a gentleman now known, at least by name, to most members of the National Rose Society. The following abstract of the schedule may be of interest to your readers. In the first section (amateur members) there are ten classes: the first six are for cut Roses of any sort consisting of ten, fifteen, twenty, thirty, fifty and one hundred varieties. The prizes are silver and bronze medals in each class. Class 7 is for fifteen Teas, Noisettes, and Hybrid Teas; Class 8 for twenty-five "Roses de premier choix;" Class 9 for pot Roses in flower (no number specified); Class 10 is for lady amateurs, and consists of a collection of Roses not exceeding fifty. Classes 7 to 10 have three medals.

In the second section (nurserymen members) there are twelve

classes. The first seven consist of collections of fifteen, twenty, twenty-five, fifty, seventy-five, and one hundred of any sort, and twenty Teas, &c. The eighth class is for "the most remarkable and the most numerous collection." Classes 9 and 12 are similar to Classes 8 and 10 in the amateurs' section. Classes 10 and 11 are for pot Roses, Class 11 being special for Roses grown on franc-de-pied and greffé rez terre stock. The prizes throughout are medals. The third section is open, and consists of three classes. Class 1 is for the most beautiful collection of the newest Roses; Class 2 is for fifteen Roses remarkable for perfume; Class 3 for twenty-five of special merit in form and colour. It is to this last class that the National Rose Society medals have been allotted.

The Hon. President offers a gold medal to the exhibitor who shall have by the number and beauty of his exhibits contributed most efficiently to the general attractiveness of the Exhibition; then follow medals for bouquets, ball, wedding, table, hand, &c., and a medal for a work dealing practically with the cultivation of the Rose.

As this Rose Show is to be held (August 22nd to 24th) at the same time as the fêtes in connection with the fiftieth anniversary of Belgian Independence, travellers, if rosarians, will perhaps like to make a note of it in their pocket-books. Antwerp itself is thoroughly well worth seeing, and the Rose Show there will by its novelty in effect and arrangement prove an additional item of interest.

I shall be happy to send this schedule to anyone who might think of competing and would like to examine the necessary conditions for doing so.—J. M. FULLER.

REIGATE ROSE SHOW.

REIGATE this year commences the season certainly a week too soon, though that might have been overcome but for the torrents of rain. Most acceptable in other ways, rain in June does not suit on the eve of a Rose Show. The result was a small Show, and Roses hardly up to the standard. The Show was held, by permission of Lady Henry Somerset, in the beautiful grounds of The Priory, which the public were permitted freely to traverse, while a band during the afternoon further enlivened the proceedings. The Judges were the Rev. H. H. D'Ombraim and Messrs. G. Paul and Francis. A box of new Roses was exhibited by the Messrs. Mitchell, who also attended, while Mr. Ivory of Dorking contributed further to the tents' adorning.

For the twenty-fours only three boxes were entered. The prize-takers were in order Messrs. Waterlow, Haywood, and Sargent. The principal contest was, as usual, amongst the twelves and for the ladies' challenge cup, taken yearly by the best box of twelve in the room. Collections of nine were shown by Messrs. Haywood, Cheales, and Sargent, who were first, second, and third respectively; an extra being awarded to Mr. Hawtry. For six of any kind Messrs. F. Pawle and E. Chambers were first and second. For twelve Teas Mr. Waterlow was first, and Messrs. Cheales and Hawtry equal second. Messrs. F. Pawle and E. Horne were first and second with six Teas.

In this Association the National Rose Society's medals are given for the best H.P. and best Tea. The former was taken by Mons. E. Y. Teas (Mr. Haywood), the latter by Madame Bravy (Mr. Cheales). For twelve of any kind Messrs. Haywood and Waterton took the two prizes with Marie Baumann and Marquise de Castellane respectively. Table decorations were shown by Miss West, Miss T. Thornton, and Mrs. F. Guimareaus, who received the prizes in the order named; hand bouquets by Mrs. C. D. Harding and Lady Henry Somerset; and button-hole bouquets by Miss Cheales and Miss Horne, one from Miss Edith Cheales being highly commended.

After concluding their labours the Judges, Committee, and visitors were entertained at luncheon by the President of the Association, G. Baker, Esq. The new class of Hybrid Teas was not shown in by nurserymen. Two boxes were entered by amateurs, the H.T.'s shown being, of course, Cheshunt Hybrid; Beauty of Stapleford, good substance; and Reine Marie Henriette, the most promising of new Roses.

THE PRIMROSE, POLYANTHUS, AND OXLIP.

THE ENGLISH OXLIP, fig. 4 (*Primula pratensis*, Nobis; *P. veris* β *elatior*, Linn.; *P. vulgaris*, var. *caulescens*, Bab.).—This is the true English Oxlip. It is the Oxlip of Shakespeare and other poets, and is not to be confounded with another plant which is very rarely met with, called the Bardfield Oxlip, which is the *Primula elatior* of Jacquin, but not the *Primula veris* β *elatior* of Linnæus, although the latter is generally given as a synonym of the former. I have examined the specimen in the Linnæan herbarium, where it is marked *Primula veris pallido flore elatior*, and there cannot be a doubt that our English Oxlip is the *P. veris* β of Linnæus.

The true English Oxlip is perfectly distinct from either a Primrose or a Cowslip. Its flowers are numerous, forming a spreading umbel on a tall, nearly smooth, or slightly downy scape rising from the centre of a rosette of leaves. Corolla flat, with five cordate deeply notched segments, the edges of which are dis-

tant or slightly convergent, and there are five narrow deep yellow lines round the throat, forming a five-rayed star. Calyx-tube tubular, as long as the tube of the corolla. Leaves like those of the Primrose, with winged petioles, and sometimes, like those of the Cowslip, with the blade terminating abruptly.

Some botanists assert that the Oxlip is a mere form of the Primrose, and distinguish it as *Primula vulgaris* var. *caulescens*; and others hold that it is a hybrid between the Primrose and the Cowslip. I at one time was of the latter opinion, being very much guided by the views of others and not by facts. Sub-

sequent experience has convinced me that I and others holding that opinion were wrong. I now consider the true Oxlip a perfectly good species, a permanently distinct individuality. All that has been said and written about it being a hybrid is mere conjecture. I have never known nor heard of anyone who has hybridised the Primrose and the Cowslip and thereby obtained an Oxlip or anything else. My excellent friend Col. R. Trevor Clarke, than whom there is no more skilful hybridiser or more careful observer, has stated over and over that he has failed to cross either of them with the pollen of the other. If, then, after



Fig. 4.—THE OXLIP.

careful manipulation they refuse to intercross by artificial means, what reason is there for supposing that fertilisation takes place naturally? There are no conditions in their natural state which cannot be secured in a state of cultivation; and after all efforts have failed to cross them artificially, I am led to the conclusion that the Oxlip is not a hybrid obtained between the Primrose and the Cowslip, but is rather a form produced by organic development in the same way as other new forms are produced in plants by bud variation and other processes of dimorphism or evolution of

the parts, and of the origin and cause of which we are as yet ignorant.

In the third edition of the "British Flora" Sir W. J. Hooker is decided in the opinion that all three plants—the Primrose, the Cowslip, and the Oxlip, are quite distinct. He says, "Few plants can be more constant to characters here laid down than these are as generally seen growing in their wild stations. They rarely are found intermixed, and in Scotland the two last kinds are scarcely known." It is true Professor Henslow had stated that

he found a Primrose which had both pedicellate and scapigerous flowers; but that was, I presume, only one instance of the variations to which the Primrose is subject, and which will be referred to when I treat of the Polyanthus; whereas the Oxlip is found over the greater part of temperate climates true and fixed to its character, not a specimen here and there, but in tolerable abundance. By way of better identifying the true Oxlip I propose to name it *Primula pratensis*, and to allow elatior to remain as the distinguishing name of the Bardfield Oxlip.—PHILANTHOS.

(To be continued.)

LECTURE ON THE PELARGONIUM.

BY SHIRLEY HIBBERD.

THE following is the text of the lecture delivered by Mr. Shirley Hibberd in the Council Chamber of the Royal Horticultural Society on the occasion of the Pelargonium Society's annual Exhibition, June 29th.

The Pelargonium affords a subject large enough to occupy as many hours, days, or even weeks, as the mere moments I shall devote to it on the present occasion. The plants on the table represent in part the beautiful collection of species and hybrids in possession of the Royal Horticultural Society, the management of which at Chiswick is all that can be desired. It is fortunate I am not bound to mention Geraniums, for, if they are of less importance than Pelargoniums they take us further back in time, and to do justice to them we should have to rummage amongst the old hooks and fish up some very curious memoranda. But the mention of the Geranium renders it necessary to begin with definitions. A Pelargonium is not a Geranium, although often so called. The true Geraniums are for the most part herbaceous plants inhabiting the northern hemisphere, and the Pelargoniums are for the most part shrubby or sub-shrubby plants of the southern hemisphere. Let us for a moment wander amongst the pleasant slopes of Darley Dale in Derbyshire, or by the banks of the Clyde or the Calder. We shall in either case be rewarded by seeing vast sheets of the lovely Meadow Crane's-bill, *Geranium pratense*, a true Geranium, and one of the sweetest flowers in the world. In the rocky recesses of Ashwood Dale, or on the banks of the "honny Doon," we may chance to see in high summer, a profusion of the Herb Robert, *Geranium Robertianum*, with pink flowers and purple leaves, a piece of true vegetable jewellery. And, once more, I invite you to an imaginary journey, and we will ride by rail from Furness to Whitehaven in order to behold on the railway bank, more especially near St. Bees, a wondrous display of the crimson Crane's-bill, *Geranium sanguineum*, which from July to September forms solid sheets, often of a furlong in length, of the most resplendent colour.

Now let us fly to the other side of the globe and alight in the vicinity of the Cape of Good Hope, say on the vast desert of Karroo, where there is much sand, much sunshine, and little rain. Here, in the midst of desolation, the world is rich with flowers, for the heathy scrub that occurs in patches, glowing with many bright hues, consists in part of wild Pelargoniums, which often take the form of miniature deciduous trees, although in the valleys nearer the coast, where more rain falls, they are evergreen bushes.

Very different in their characters are these two tribes of plants, and they are not less different in their constitution and aspects. We may regard the Geraniums as herbs of Europe, and the Pelargoniums as miniature trees of Africa. When we examine the flowers we find the five petals of a true Geranium of precisely the same shape and size; but the five petals of a Pelargonium are not so, for sometimes the two topmost are the largest and stand apart from the rest. The florists are doing their utmost to obliterate the irregularity of the petals of the Pelargonium, and in this respect to convert Pelargoniums into Geraniums, but the conversion will not be complete until much more wonderful things are accomplished. A Geranium has ten stamens, and a Pelargonium has only seven. These numbers are not constant, but the exceptions are of no consequence in a general statement of the case.

When all is said that can be said about the differences and resemblances of the several families of Geraniaceæ, there remains only one constant and unfailing test of a true Pelargonium, and that is the nectariferous tube immediately beneath the flower, and running down one side of the flower-stalk.

The best short summary of the history of the Pelargonium I have met with is in the *Gardeners' Chronicle* of October 2, 1841. It gave me a clue that I wanted to the first-known Pelargonium as an inmate of an English garden. It speaks of one known to Gerard, but there is no mention of it in the Gerard of 1597. However, at page 948 of Johnson's Gerard of 1633 is a record of a plant called *Geranium indicum*, "as of late brought into this kingdom by the industry of Mr. John Tradescant;" and the author adds, "I did see it in flower about the end of July, 1632, being the first time that it hath flowered with the owner thereof." The plant figured by Sweet as *Pelargonium filipendulifolium* (L., 85) is a variety of *Pelargonium triste*, which is identical with the Indian Geranium of Johnson's Gerard. Thus we determine that the first flowering of a Pelargonium in this country occurred nearly 250 years ago.

Here it may be proper to remark that there are a few true Pelargoniums that are not natives of the Cape of Good Hope. *P. canariensis*

is a native of the Canaries; *P. australe* comes from the Australian continent; *P. cotyledonis* is found wild in St. Helena; *P. Endlicherianum* is Asiatic and almost European. There are two or three species in Abyssinia. But *P. triste* is a Cape plant beyond a doubt, and it is most agreeable to know that our first Pelargonium was brought into the country by John Tradescant, of whom Parkinson speaks as that worthy, curious, and diligent searcher and preserver of all Nature's rarities and varieties. It was in all probability amongst the treasures acquired in his voyage to Barbary, in the fleet sent out against the Algerines in 1620. When, in 1629, he became gardener to Henrietta Maria, Queen of Charles I., this plant was in his famous collection at Lambeth, and was thence sent forth as the pioneer of the Pelargoniums and the Pelargonium Society. As the Cape was discovered in 1497, the plant had 123 years to complete the journey to the Mediterranean, and no doubt had the help of Portuguese traders in so doing.

It is singular that John Tradescant, who was an Englishman, born in Worcestershire, and probably of French extraction, was always regarded as a Dutchman. It is singular in this connection, because subsequent to his introduction of the first Cape Pelargonium, the Dutch were certainly the introducers of a dozen or more species that soon after came into Europe. In Dr. James Sherard's wonderful garden at Eltham there were in 1732 half a dozen species. In the second edition of Miller, published 1733, there are twenty species of African "Geraniums," and these are all Cape Pelargoniums. This brings us to the publication by Linnæus of the "Genera Plantarum" in 1737, and the "Species Plantarum" in 1753, when the twenty-five species of Pelargoniums known to him were described as Geraniums for the last time in any work of high authority. In 1787 L'Heritier distinguished them by the signs I have already mentioned. In the "Hortus Kewensis," published in 1812, as many as 102 species and hybrids are described as then in cultivation at Kew, and the list includes *triste*, *grossularoides*, *zonale*, *inquinans*, *lateripes*, *peltatum*, *grandiflorum*, *quercifolium*, and *fulgidum*.

The splendid garden varieties of Pelargoniums that afford us so much delight are in a certain sense the creations of human skill. Nature never needed such things and did not trouble to produce them. They are the products of careful systematic hybridising and crossing, and they represent the talent and perseverance of the florists during a period of sixty-five years—a period so brief considering what has been accomplished that it shrinks to a moment when we compare the original wildings with the splendid flowers of this day. In the year 1815, or thereabouts, the amateurs began to cross the species, and one of the leaders in this delightful work was Sir Richard Colt Hoare, who obtained a considerable number of beautiful hybrids. The work was taken up with more serious views by Mr. Robert Sweet, the author of a number of valuable illustrated works, comprising one in five volumes devoted to the Geraniaceæ.

The large-flowering or florists' Pelargoniums are reputed to be the offspring of *P. speciosum*. It must be evident to every cultivator of these flowers that the blood of a score or so of species is mingled in them. *P. speciosum* was introduced in 1794, but it has no place under this name in Sweet or the "Hortus Kewensis." It is variously described as producing purple and white flowers, and can scarcely be said to have a history. If the question be asked, What is Pelargonium speciosum? I must refer to Sweet's description of *P. involucratum*, No. 33. He there refers to speciosum of Andrews as identical with his own superbum, and he puts the speciosum of Willdenow out of court altogether. It is likely, I think, that *P. spectabile* (136), a hybrid raised from *P. cucullatum* and *P. ignescens*, and *P. involucratum* (33), raised from *P. cucullatum* and *P. superbum*, were the founders of the florists' race. Certain it is that these typical kinds were endowed with the capability of varying indefinitely, and with a plastic constitution rendering them possible sources of innumerable floral surprises. It is scarcely an exaggeration to say that amongst the true hybrids there are at least fifty that might be the parents of our exhibition race. But to clear up the point is impossible, for in very few instances did the early raisers keep any record that could be referred to for settling questions of pedigree.

The first variety figured as a proper florists' flower was called *Geranium grandissima*, raised by Mr. Widnall of Grantchester. The portrait of this variety appeared in the "Floricultural Cabinet" of September 1st, 1834. It was a pretty flower, with rich dark top petals and warm bluish-tinted under petals; but the small size and poor form would exclude it from any collection of Pelargoniums in the present day. What a marvellous advance on this do we behold in the latest flowers of Mr. Hoyle or Mr. Foster! To Mr. Hoyle, no doubt, we must assign the gold medal as the producer by systematic crossing of the finest varieties of the present day.

(To be continued.)

HERBACEOUS GRAFTING.

SUCH trees as Peaches and Nectarines, as all know who have had much experience in their cultivation and management, are peculiarly liable to have their symmetry destroyed by the buds failing to break in certain desired positions, by slugs destroying the growth in its early stage, or blister affecting the foliage and killing the shoots. When trees are thus deprived of growth in certain important parts the mode of filling the vacancies by what

is known by the French as herbaceous grafting is worthy of notice at this the proper time for adopting it successfully. The annexed small sketch shows how the process is carried out. A branch is destitute of a shoot, therefore a growth (D) is taken upright from below the vacancy, inarched (C), and grows in the direction B, and the want is supplied. The work of effecting the union of a growing shoot with a healthy stem is very simple. Make a slit about $1\frac{1}{2}$ inch long precisely as in ordinary budding, but with a transverse cut both above and below the longitudinal slit; raise the bark; take a thin slice from the young shoot or scion, then place the prepared growth under the bark of older wood; secure with matting, and shortly a union will be effected; and in due time, some months afterwards, the new branch may be first cut



Fig. 5.

half through and then severed entirely just below the point indicated by the ligature. This inarching may be done from the present time onwards to September as the growths attain the desired length and firmness.—J.

WORK FOR THE WEEK.

KITCHEN GARDEN.

It is customary in many gardens to leave a breadth of the early Cabbage stumps to afford a supply of young heads in autumn. If a reservation has not been already made, it should be attended to without delay. Plant-out Leeks in trenches prepared as for Celery. French Beans may yet be sown in a warm situation. Make a sowing of Endive, deferring sowing for the main crop until the middle of next month. Sow Lettuce for succession, choosing the Cos varieties as being less disposed to be flabby in dry weather than the Cabbage sorts. Parsley previously sown should be thinned-out to about a foot distance apart, and some of the plants should be carefully lifted and planted in single rows in sheltered sunny positions near the base of walls, where protection can easily be afforded in severe weather. As the ground becomes vacant plant-out Broccolis, Cauliflowers, Cabbage for autumn use, Brussels Sprouts and winter vegetables generally, reserving a good breadth for Rosette Coleworts and winter Spinach, which succeed well after Potatoes or Peas, also the Tripoli section of Onions, which may follow Cabbage or Cauliflower. Small sowings of Turnips at intervals will for the present suffice. Shallots as soon as they indicate ripeness should be taken up, dried, and stored in bunches or otherwise. Attend to training Tomatoes as they advance in growth, removing all the side shoots when the requisite number of fruiting shoots are obtained. Train and peg-out the growths of ridge Cucumbers and Vegetable Marrows as needed. The surface soil should be frequently stirred in suitable weather, and every endeavour be made to accelerate the growth of the crops and retard the weeds, hand-weeding in moist weather being more effectual than frequent hoeing and raking.

HARDY FRUIT GARDEN.

It is of the greatest importance to keep fruit trees free from insects, whether the trees are trained to walls or otherwise, and during such a season as the present this is by no means an easy task. The

removal of the foreright or unnecessary shoots, or stopping them, will in many instances be a means of destroying the aphides, and the shoots so removed and infested should at once be collected and burned. Black aphides on Morello and other Cherry trees are difficult to dispose of, as tobacco water or other destroying agents do not have the least effect unless the insects are disturbed, as they may by gently rubbing the infested leaves, &c., with the fingers, tobacco water or the insecticide being employed, following when the trees become dry with a forcible syringing so as to dislodge the insects. The shoots of wall trees should be secured by nailing or tying as they advance in growth, allowing space for the shoots to swell. Attend to stopping and regulating the growth of bush and pyramidal Apple, Pear, Plum, and Cherry trees. Caterpillars are abundant, for which careful hand-picking is an effectual remedy, and Fir-tree oil, nicotine soap, and fresh-ground hellebore powder will destroy them if effectively applied; and the two first are equally effective against aphides, which are unusually prevalent on Gooseberry and Currant bushes. Cutting the shoots back and burning them will destroy many insects, and will better admit of the application of an insecticide. Raspberries with other small fruit are abundant and must not lack moisture, therefore if the soil be dry apply water copiously and mulch with manure. Strawberries must receive abundance of water in dry weather, and the fruit must be carefully protected with nets.

FRUIT HOUSES.

Vines.—Hasten the thinning of late Grapes; those that have to hang over the winter will require rather more thinning than these not required to keep past November, otherwise they will not keep well when a close damp atmosphere has to be contended with. Check all gross laterals, not allowing them to grow until they crowd the principal foliage, then removing them in such a quantity as to cause a check to the roots, which not infrequently results in shanking of the berries. Remove surplus bunches freely, or if the crop be heavy the Grapes will not be thoroughly ripened. It is false economy to extinguish the fires at this season unless the weather be unusually warm, as gentle fires to maintain a night temperature of 60° to 65° and 70° to 75° will ensure steady progress, and allow of the Grapes ripening in August and early September when there is more sun and light, and they will keep very much better than those that have to be ripened in September and October by sharp firing and at greater cost. Vine borders that are high and dry do not generally receive sufficient water when the Vines are in active growth, as they can hardly have too much if the drainage be efficient from the time the Grapes commence swelling until they are well advanced in colouring. Ventilate freely houses containing Muscats that are ripening, also maintaining a good temperature; even Hamburgs when ripening should have a free circulation of rather dry warm air as Grapes ripened in a low temperature are generally poor in flavour and do not keep well. A brisk heat for heavily cropped Vines ripening their fruit would be injurious, more time being required under such circumstances, and rest should be given by allowing the temperature to fall to 60° at night. Houses in which the Grapes are ripe should be kept cool and well ventilated. Vines from which the Grapes have been cut should be syringed every evening to preserve the old foliage as long as possible, and air should be admitted freely night and day. Young Vines will require syringing in the afternoon of bright days, closing the house early with a moist atmosphere to secure free growth, encouraging surface-rooting by frequently supplying tepid water.

Figs.—The first crop will now be gathered, and the trees will require generous treatment, affording liquid manure to the roots, especially such as are in pots or borders of limited extent. As the crop is likely to be large thin freely before the fruits are as large as walnuts, reserving those nearest the base of the shoots. Syringe twice a day to keep red spider in check. Tie-in the growths to the trellis as they advance, stopping such as are not required, and regulate them to ensure exposure to light and air. In houses where crops are ripening, constantly maintain a circulation of dry warm air to ensure the Figs ripening perfectly. Trees in pots intended for early fruiting next season must not now be neglected; syringe them overhead at least twice a day, and supply them with liquid

manure composed of a handful of guano to three gallons of water. When the trees have fully matured their growths in the forcing house they may be placed outdoors in some sunny corner to harden, but it is well not to do so too early, or not at all unless the growth is well matured.

Melons.—As the houses become cleared of their crops remove the old plants, and make preparations for a fresh start. The soil should be removed entirely; and where bottom heat is solely supplied by fermenting material a portion should be taken out and some hot dung worked in, so as to revive the bottom heat. Similar remarks apply to pits and frames. Plant on mounds or ridges rendered firm, and maintain a moist genial atmosphere. Pot off seedling plants, and keep them near the glass to secure sturdiness of habit. Continue fertilising the blossoms of plants that are flowering, and during dull weather ventilate at night, as moisture from condensation during that time will settle on the blossom and be fatal to setting. Directly the fruit is set and swelling earth-up the roots, and keep the laterals closely pinched, thinning out the growths where too crowded. Syringe every afternoon early, maintaining a good moisture by frequent damping, and afford liquid manure to plants with swelling fruit. Close early with a good sun heat. Ventilate at above 75°. Shade only to prevent flagging, paying particular attention to this in bright weather following a dull period. Watch for canker at the collar, and if it appear rub the affected parts with quicklime at once, as when it becomes established it does great mischief in a short time. If the fruits commence cracking reduce the supply of moisture both at the roots and in the atmosphere, and cut the stem half or three parts through below the fruit, and admit air freely, especially at night.

Cucumbers.—The present is a good time to sow a few seeds for late summer and autumn fruiting, about three to four weeks being required to secure sturdy plants. Make the necessary preparations by collecting the fermenting material and soil, and thoroughly cleansing the house. Although no fire heat is now required a gentle bottom heat in the case of new beds is desirable. Test the heat of the beds before planting, and do not plant until the heat has reached its maximum and is on the wane, it not being safe above 90°. Afford liquid manure copiously twice a week, maintaining plenty of atmospheric moisture in hot weather. Fumigate against aphides and thrips occasionally, and employ the knife freely. Train, stop, and thin-out the old growths and foliage in pits and frames, earthing-up the roots, removing the lights for a few hours on showery afternoons. Sprinkle the plants overhead at 4 P.M., closing the lights at that time. Ventilate early in the day, and shade only to prevent flagging.

TRADE CATALOGUE RECEIVED.

Samuelson & Co., Banbury.—*Illustrated General Catalogue of Agricultural and Horticultural Implements.*

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Fuchsias not Thriving (*E. H. O.*).—Treat the plants as advised in "Work for the Week," cutting back the shoots moderately, and your plants will flower finely again over a lengthened period.

Primroses (*Mrs. Daubeny*).—If you send a reminder to "PHILANTHOS" a month hence, when the seed will be ripe, and enclose two stamps, your wish will be complied with.

List of Market Prices (*R. Sutcliffe*).—When the list you refer to is not published you may take it that the prices remain as before. Your request shall have our attention.

Zygopetalum Mackayi and Cattleya labiata Unhealthy (*An Orchid Lover*).—The spots on the Zygopetalum leaves are due to excessive moisture, especially at night. Allow the leaves to become dry before night, and admit air more freely. The Cattleya probably requires more moisture, or the buds may have been destroyed. Place it in a warmer temperature.

American Blight on Apple Trees (*A. Z.*).—If you dip a small brush in paraffin and touch the affected parts, not applying the oil to the smooth por-

tions of the bark, nor in such quantity as to run down the branches, you will destroy the insects and not injure the trees.

Market Garden Crops (*Z. V.*).—The landlord is undoubtedly entitled to a valuation for the crops upon the ground when you take the lease, unless there is some special stipulation to the contrary. That is, presuming you take the lease immediately of the landlord and not of a previous tenant.

Propagating Ericas (*A. B.*).—If you have been careful in selecting vigorous half-matured cuttings, they will soon produce roots under the treatment you mention. Especial attention to watering is needed, as they are very liable to "damp off" even when rooted. Wipe the condensed moisture off the inside of the bellglasses daily, and remove them as soon the young plants are making growth.

Growing the Cape Gooseberry in Pots (*Subscriber*).—It will succeed admirably in a pot, being shifted on as it requires more root room, or it may be kept in a pot of about 10 inches in diameter, supplying liquid manure freely after the roots have filled the pot. The shoots may be stopped to induce a branching habit. The plant must be trained to a trellis or wall, and have plenty of light and air.

Stopping Young Vines (*Idem*).—Stop the leading stem at the top of the house, allowing the laterals to extend as far as space will admit, but not allowing them to crowd the principal foliage.

Grafting Vines (*Querist*).—Both the varieties you name will succeed on the Black Hamburgh stock, but we prefer the Muscat of Alexandria on its own roots. This fine Grape also, owing to its free root-action, forms a valuable stock for other varieties. The other white Grape to which you refer is good in some soils and districts, but not in all. You might try a Vine of it, and if it answers your expectations you could quickly increase it by inarching or grafting.

Thrips on Cucumbers (*Viper*).—Fumigating, not strongly but frequently, will destroy thrips; but if the plants are much infested you had better first syringe them with a solution of soft soap, Gishurst compound, or some other insecticide. A safe strength is 2 ozs. of soft soap to a gallon of water, adding a quarter of a pint of tobacco liquor, and applying at a temperature of 100° to 120°. Fumigation should be done on two consecutive nights at intervals of ten days.

Melons "Bursting" (*Ebor*).—It is a result of excessive vigour, but it not infrequently arises from a too moist and close atmosphere. The best remedy is to cut the stem about half way through below the fruit to check the flow of sap, and supply water at the roots only to prevent flagging, keeping a dry atmosphere by a free circulation of air at night as well as day.

Flowering Plants for a Room (*Sussex*).—The most suitable plants for flowering during the winter and spring would be such bulbs as Hyacinths, Narcissuses, Jonquils, Snowdrops, &c., and of miscellaneous plants Pelargoniums, Fuchsias, Cinerarias, and Calceolarias with many others. Annuals are not generally suited for windows. You will find full particulars upon this subject in "Window Gardening for the Many," published at this office, price 9d., or post free for ten penny stamps.

Storing Bulbs (*Saxony*).—If such bulbs as Hyacinths and Tulips are not removed from the beds until the foliage is considerably withered all that is required is to spread the bulbs on mats and dry them gradually, and then store them on shelves in a dry cool room until they are required for planting. If the plants have to be removed before the foliage is quite yellow, but yet changing, they may be laid in rows in trenches on a border for a few weeks, the roots being well covered with soil, and then dried and stored as indicated. Such bulbs as Crocuses and Snowdrops are often best left in the ground, and if they are near the margin of beds they do not interfere with the summer flowers. Generally speaking, flowering bulbs require the same care in drying and storing as Onions.

Mildew on Vines (*G. W. B.*).—The leaves sent are infested with mildew, and you cannot adopt a better or safer plan for destroying it than dusting every speck with sulphur. It usually adheres the best when applied very early in the morning before the ventilators are opened, as the foliage is then slightly moist. If this is not so you may syringe lightly, and shortly afterwards apply the sulphur, dusting it through a muslin bag. Some cultivators mix sulphur in water and apply with a syringe. The Strawberry resembles Sir Joseph Paxton, but it is difficult to determine the name without seeing a growing plant.

The Celery Fly (*R. T.*).—This insect is the Tephritis onopordium of entomologists; it is the larvæ which burrow in the substance of the leaf, and when fully grown pass from the plant to the ground, where they undergo the usual pupal changes, the result being the production of a small winged fly-like creature that is in its perfect state during early summer. The grubs are found in the leaves from June till October, as several distinct successional broods are produced. As your plants are now left unmolested you may conclude that the larvæ have passed to the ground, but it is by no means certain that the plants will not be again attacked by later broods. Pressing the leaves between the thumb and finger is the only means of destroying the grubs.

Pelargoniums for Winter (*Novice*).—We presume your plants are of the Zonal type; if so, and they are free-flowering varieties, you will have no difficulty in flowering them from November onwards, provided you have a light house and can maintain a temperature of from 45° to 50° during the period you name. Presuming you have young plants, which are the best for the purpose, they should be placed in clean well-drained pots, employing a compost of rather heavy turfy loam and about one-fourth of decayed manure, potting rather firmly. They should be placed in a well-ventilated frame for a time until they are established in the new soil, when they may be partly plunged in ashes in an open situation outdoors to promote sturdy growth. The shoots may be stopped once or twice, and the flower buds should be removed during the summer. Water them carefully yet sufficiently, as it is important to keep the root-action vigorous, but lessen the supply somewhat in September, and place the plants under glass before heavy autumn rains occur. If you plant them out you will fail in your object. Amongst the varieties for this purpose few are more useful than the old scarlet Vesuvius and its white and salmon varieties.

Stephanotis Culture (*S. C.*).—It is a stove plant, but succeeds in an intermediate house, and even in a greenhouse during the summer if the air is not too dry. It requires copious supplies of water during the period of growth, and frequent syringings to keep it free from insects. If you withhold water gradually in September you may possibly preserve it through the winter in the warmest part of your greenhouse, but the pot should be pretty well filled with roots at that time, and the soil must not be kept too moist, neither extremely dry.

Culture of Statice profusa (*Young Gardener*).—The specimen you sent was a portion of this beautiful greenhouse plant, which when well grown is one of the most useful for decoration in the conservatory, the flowers being so

extremely durable. The plant should be grown in a soil consisting principally of fibrous loam, with small proportions of peat, leaf soil, well-decayed manure, with sufficient sand and small pieces of charcoal to render the whole compost moderately open and sweet. Early spring is the best time for potting, an operation which requires some care to prevent undue injury to the roots, or success will not be easily attained. Attend carefully to the supply of water, especially immediately after giving the plants a shift, as they are equally as impatient of excessive moisture as of drought. While in growth an increase in the temperature, with more liberal supplies of water and frequent light syringing, will contribute greatly to their health. While in flower, and afterwards, however, less heat and moisture are requisite, an ordinary greenhouse temperature being suitable. Statice may be readily increased by cuttings of the young shoots inserted in sandy soil under a bellglass in moderate heat, the "striking" being sometimes accelerated by adding a few pieces of charcoal to the soil.

Cucumbers in Greenhouse not Thriving (*Five-years Subscriber*).—The plants are evidently suffering from defective root-action, caused probably by the heavy early cropping, which exhausted the plants. Remove as much of the surface soil as can be done without injury to the roots, and apply a top-dressing of rather lumpy loam, and water with liquid manure at 90°. Encourage growth by the maintenance of a moist atmosphere, ventilating at 75°, and allow a rise to 80° to 85° or 90°, but with free ventilation, closing the house at 80°, syringing the plants moderately at the same time, and damping available surfaces in the house. Do not syringe in the morning. Allow the plants to extend and to start freely before stopping, and when good growth is being made stop the shoots one or two joints beyond the fruit. Shade from bright sun. On no account must the foliage be allowed to flag, but employ as little shading as possible. Remove all flowers and fruit until the plants are growing healthily.

Morello Cherries Falling (*P. I.*).—It is a consequence of the fruit not stoning, and is generally attributable to a very vigorous growth imperfectly ripened. We have also known it result from a deficiency of calcareous matter in the soil, and in other instances from an insufficient supply of water at the roots. If the tree be very vigorous take out a trench about 3 feet from the stem, and cut off all roots extending beyond that. Return the soil to the trench, mixing about a tenth of old mortar rubbish with it, and render it firm. This should be done in autumn when the leaves are turning yellow, also loosening the soil up to the stem of the tree, and mixing with it some old lime rubbish, mulching with litter. If the casting of the fruit be due to a deficiency of calcareous matter mix some old mortar rubbish with the surface soil as deeply as the roots will admit, which should be done when the leaves are falling. But if it arise from dryness, as may be the case when there is a pathway near that throws off the water from the roots, holes should be made with a crowbar; and a good watering given through the holes when the tree is in flower, and repeated after the fruit is setting, will mostly prove effectual, the holes being filled up with soil, but not firmly. We think, however, that the tree is too luxuriant, and requires root-pruning.

Grapes Scorched (*F. E. P.*).—The injury has been caused by the house having been kept closed too long in the morning. When the sun shines powerfully on the Vines when the foliage is moist scorching ensues, and when, the temperature having been permitted to rise too high, a large amount of air is given at once, the evaporation from the fruit is so rapid as to cause injury. If a night temperature of 65° to 60° is maintained with the top ventilators opened about half an inch, and additional air admitted immediately the heat increases in the morning, adding to the amount in advance of the rising temperature, you will not be troubled with scorching or scalding, except perhaps during a very hot day occurring after several days of dull weather, when special care is always requisite in the ventilation of vineries. In such a case we have known it necessary to sprinkle the glass with whitewash, applied with a syringe, to break the rays of the sun.

Roses in Pots (*Busy*).—We submitted your letter to an experienced cultivator and successful exhibitor of Roses in pots, and his reply is as follows:—"Your correspondent has acted wisely in following the directions given from time to time in this Journal. We for several seasons exhibited successfully Roses that had been grown in a cold pit 20 feet by 8. The foliage and blooms were all that could be desired, and for growing small plants we consider such a pit is one of the best places for first encouraging short and luxuriant growth. 'BUSY' does not state what size the plants are, but we presume they are small, seeing that a few of them were only had from a nursery within the present year. If the plants are well rooted they should be repotted at once in larger pots, using a compost of strong turfy loam (the top spit from an old pasture that has laid in a heap for at least twelve months) three parts; the other part well-decayed manure and leaf soil, with just a sprinkling of bone dust. Chop and mix the whole well together, and pot firmly, taking care that the balls of the plants are moist before potting. After potting plunge them out of doors in a bed of coal ashes or cocoa-nut fibre, and pinch off all buds as they appear. A good mulching of manure placed over the pots will be highly beneficial, as the rains will wash the properties of the manure into the soil, and strong firm wood will be produced for next season's supply of bloom. Watering overhead, in the absence of rain, after a hot day will keep the foliage clean and refresh the plants. They may be left plunged in this position until the beginning of October, when they should be allowed to become gradually drier, and may be housed for the winter. About three months previous to the time the plants are wanted to bloom they should be pruned—not by cutting short back all the strong wood that it has been the main object during the summer months to procure, but by merely removing the unripened points and weak growths, bending the remainder of the shoots with the points downwards to the side of the pots. This is best done by placing a strong piece of cord around the rim of the pot, and securing the point of each shoot to it. This treatment will cause each shoot to break back quite to the base, thereby giving more shoots and blooms than could otherwise be produced, for all Roses have a tendency to produce two or three strong breaks near the points of each shoot, leaving the base naked. By following these directions your correspondent will, we think, be highly successful another year."

Names of Plants (*Highland Laddie*).—1 is not an Orchid, but *Utricularia montana*; 2, *Epidendrum cochleatum*; 3, apparently *Oncidium luridum*, but all the specimens were very much withered, owing to their being badly packed. (*Nil Desperandum*).—1, Completely withered; 2, *Myosotis dissitiflora*; 3, *Asplenium marinum*. (*F. H. S.*).—The specimen somewhat resembled a poor form of *Général Jacqueminot*, but it was too shrivelled to be determined with certainty. (*A. B. P.*).—1, *Carex sylvatica*, Wood Sedge; 2, *C. divulsa*, Smaller Prickly Sedge; 3, *Luzula congesta*, Roundheaded Woodrush; 4, *L. campestris*, Field Woodrush; 5, *L. pilosa*, Hairy Woodrush; 6, *Melica uniflora*, One-flowered Melick. We only name six specimens in one week. (*W. M.*).—1, *Glandolus ramosus*; 2, *Teucrium angustissimum*; 3, *Corydalis lutea*; 4, *Geranium striatum*; 5, *Habenaria bifolia*. (*Staines*).—1, *Galium verum*; 2, *Scabiosa succisa*; 3, *Symphytum officinale*.



POULTRY, PIGEON, AND BEE CHRONICLE.

PEDIGREE IN CEREALS.

(Continued from page 504, Vol. LXIII.)

IN continuation of the subject, we refer to Major Hallett's lecture, who says, as to our third fact, the possibility of producing practical "fixity of type"—"I say practical fixity, because, as the President of the British Association for the Advancement of Science remarked to me at one of our meetings of the Linnean Society, 'If there were absolute fixity of type once produced there could be no further improvement.' With this I cannot do otherwise than agree, and I wish to be understood to mean by 'fixity of type,' simply that which we obtain in pure-bred animals. As one illustration of 'fixity of type,' I will adduce the results obtained in various wheat-producing countries of the world from my original red pedigree wheat. Although grown in vastly different soils, climates, and circumstances, the produce, ear and grain, is, with slight modifications of colour, perfectly identical with that grown in the United Kingdom. In the Paris Exhibition of 1867, for instance, amid all the specimens of cereals from the various countries, I at once recognised in scores of instances my own original red pedigree wheat before referring to the catalogues. Another instance of 'fixity of type' I find in the case of Colonel Le Conteur's 'Belle Vue Talavera' wheat. For very many years his object was to improve the quality of his grain. He paid no regard whatever to increasing the number of ranks in the ear; and so, while for years pursuing his own particular object, he incidentally 'fixed' the size of his ears of wheat, and it alone, of all the hundreds of varieties of which I have experimented upon, has refused for eight consecutive years to move beyond the eleven ranks peculiar to it. To show that he certainly did fix the type of his ear, I find those which he sent me are absolute fac-similes of those which I saw in the Museum of the Royal Agricultural Society in Hanover Square, and which were contributed by the Colonel about the year 1840."

After these quotations we must ask the home farmer to consider how far the experiments related can be turned to his own account in the growth of grain upon the home farm. Now we know that there has existed for ages a certain fixity of type, which is shown by the varieties of wheat which are offered for sale, such as Australian white wheat, Canadian wheat, wheat imported from India, Russia, Egypt, and other parts; in fact, we have white wheat, red wheat, white and red-chaffed wheat, rough and smooth-chaffed wheat, bearded wheat, winter and spring wheat, &c. In all these fixity of type has gone no further than deciding the colour of the grain and chaff, the quality of the grain, &c. The practical farmer will say, "I find such or such a variety of wheat suits my soil and climate best, and the same remark applies to barley or oats." There are further reasons for a choice of sorts, that of quality of grain and value to the miller being of great importance, especially in certain districts. An instance of this we find at Guildford in Surrey, where the best quality of white wheat is grown, and when grown upon certain soils in that neighbourhood the grain has a value which can be obtained nowhere else, except, perhaps, a few samples which reach Mark Lane, the metropolitan market, but grown in the same neighbourhood. The two varieties of wheat commonly grown for the Guildford market are "Chidham" and "Trump." These sorts are especially beautiful, and of great weight per bushel, as we have noticed when we have acted as judge of the

grain exhibited for prizes at the Guildford Cattle Show at Christmas time.

Now in certain favourable seasons, although the quality is very fine, the crop and value of the grain per acre good, yet there is the practical question of pedigree in cereals to be considered, which is this: We grow a certain crop (say of wheat) of forty bushels per acre, and we wish for more. How is more to be obtained? Outside the question of pedigree we have sown the best sample which we could obtain, and prepared the soil for the crop in the best possible manner both by tillage and manure. It is quite clear, however, that we cannot grow more ears in number, and if not, how can we obtain what we require? for we cannot sow more than the customary quantity of seed; if we do we shall get only green fodder, or a laid or lodged crop, instead of grain of good quality. The number of ears per acre cannot be increased, for in case we drill one bushel, or sow broadcast two bushels per acre, we can only reap about one million ears per acre. Pedigree, however, comes to our aid, and shows that the only means of increase is by increasing the size and contents of the ears, and this has certainly been effected by the system of selection pursued by Major Hallett in producing his pedigree grain, whether of wheat, barley, or oats, and these have, we assume, if properly cultivated in every respect, just the same tendency to produce large ears as pure-bred Durham cattle have to produce their like progeny. To produce these results we have, however, to consider the period of sowing, and we know that the customary seed time has been very much delayed from various circumstances during the last thirty years. We can recollect when at certain fairs held in August it was customary to purchase the seed wheat of the previous harvest, and to sow it at the end of the month, or in the early part of September, according to the soil and climate in which the crop was to be grown.

The chief cause of wheat being sown so late is the feeding off roots upon the land, or the clover lea ground being reserved and fed with sheep, and other causes. If, however, the home farmer decides to grow pedigree grain thin drilling must be resorted to, say one bushel per acre, sown early in September, and the distance between the rows should not be less than 10 or 12 inches; there will then be not only room for effectual horse and hand hoeing between the rows, but the plants will have plenty of room to tiller. Thus, without any crowding, ears of full size will be obtained, for it must be remembered that pedigree corn will throw large ears, when ordinary corn will not do so with any regularity. We do not wish to recommend any variety of wheat; but in case it is found that any particular sort suits the soil on which he farms it is desirable to obtain grain of full pedigree, for it is frequently the case that white wheats of high quality are grown because there is a demand for it at a district market. It should, however, be matter of experiment, taking, for instance, the best pedigree red wheat, and the same of Belle Vue Talavera or other white wheat, such as Essex rough chaff, both of the latter are of the best quality. It sometimes occurs that the red wheat will realise the most value per acre, and especially when grown near manufacturing and seaport towns where there is a demand for the red wheats by the millers for the manufacture of a low-priced flour; hence the necessity of experimental comparison.

WORK ON THE HOME FARM.

Horse Labour.—Some horses will be employed in cutting grass with the mowing machine on the pasture or park lands. In those pastures, however, which were first mown for hay the carting and stacking will still be going on; at the intervals when not so employed the tillage of the fallows and the ploughing of land for roots after vetches or the hay crop may still employ some of the horses. As fast as land is ploughed for roots after a green fodder crop it should be worked down with harrows and rolled the same day, not only for the purpose of retaining moisture in the soil, but for obtaining a fine surface, so that the young plants may receive all the benefit which can be obtained from the rain. The finer the land is the longer it will retain moisture, in the absence of which no root crop can flourish, especially of the early sowings. The late sowings, however, will often be greatly benefited by the autumn rains, particularly turnips sown as late as the end of July or the first week in August. Land intended for sowing with permanent pasture grass seeds should be attended to, and kept free from couch grass and weeds, so that it may be clean and fine when the sowing takes place, which may well be done in the second week of August. As soon as the saintfoin hay is carted off the land, and as it is in the third or fourth year when the land is usually broken up for another crop, if it is foul with couch or lop grass it is a good plan to skim the turf with the breast plough or the one-horse paring implement. Burn the turf as fast as it can be collected, for in a dry season the turf may be placed on the fires as soon as cut, because the best ashes will be derived from turf burned in a rather damp state. It should be what is termed stifle burnt—that is, placed upon the fires fast enough to prevent the fire showing on the outside

of the heap; the ashes will then be charred and black instead of being a white or red colour. There is no better way than this of clearing an old saintfoin lea, because, Dr. Voelcker says, the ashes will often contain a considerable amount of potash, besides substances the equivalent as manure to 20 bushels of bone dust per acre. The cost of paring and burning is not more than several ploughings, harrowings, rollings, couchings, &c., would be when fallowed in the ordinary way. There is, however, this difference, that when the turf is burned as fast as cut the insects are destroyed whilst secreted in the turf, whereas they have time and opportunity to escape and remain in the soil when the land is ploughed and tilled in the ordinary way; besides which, paring and burning will destroy a great number of weed seeds which may be near the surface. Nor is it of any consequence what crop follows, because the land will be in good order as a seed bed for wheat, or if preferred it may be fallowed and be sown early with barley or oats in the spring. The crops of hay this year are generally very light and will not require much making. We must ask the home farmer to consider the plan of staking the hay in layers with some sweet oat or barley straw, and when doing so the hay may be carted a day or two earlier, and thus diminish the risk of injury by rain; at the same time it will be found that the straw when trussed out of rick together with the hay will be coloured and flavoured by the heating of the hay, and will certainly make valuable chaff when cut as required either for horses, fattening cattle, or any stock including sheep.

Hand Labour.—As soon as the roots, whether mangolds, carrots, Swedes, or cabbage, have been horse-hoed the hand-hoeing should follow quickly. If the weather should continue excessively dry the plants can be left a little closer than usual in the rows, and in a dry season the wireworms and grubs are sure to destroy many plants, and in fact they seldom leave enough to make up a full crop if set out at the full distance at hoeing time. We find this is more especially the case with the carrot crop, and therefore recommend a plan we always adopt. Instead of setting out the plants in the rows at the usual distance at the time of hoeing we clean the land from weeds, and when the carrot plants attain about the size of the finger we either pull the plants and feed cattle with them, or otherwise if labour is scarce we cut them out with the hoe at the required distance, and when the plants have attained the size stated the grubs will not be able to eat them. The autumn rains, too, will have commenced and stop the grubs in feeding upon the roots. As the crop of clover will be very light we must ask the home farmer to save as much as possible for a second cutting, as this will not only furnish an extra bulk of hay, but the land when sown with wheat afterwards will produce a better crop than it would after feeding sheep on the second crop. The second crop of clover, however, if not required for hay will come to hand well for feeding fattening bullocks in the boxes, or furnish supplementary food for dairy cows, horses, &c., which will be better than risking the making into hay. This was always a favourite plan of ours, for the clover not only comes in at a time for use before the root-feeding commences, but the cattle do well upon it and make an immense quantity of valuable box manure.

The time is now come on many farms to buy the sheep stock; and in the case of purchasing lambs for fattening next winter, they should be dipped to kill ticks and skin vermin, or what is better shear them and sell the wool on or about the beginning of August. The lambs will do much better, especially long-wooled sorts, and make when sold from 5s. to 7s. more per head. This is now a good time to put the rams with the Dorset Down ewes; the best bred Hampshire ewes will also offer to the ram at this time if well fed.

KERRY COWS.

THERE are, I am sure, a good many persons who are situated like myself—i.e., have no way of keeping more than one cow, and are therefore desirous of having a good one: let me, then, give my experience of this valuable breed. I have hitherto kept half-bred Alderneys; but reading a good account of the Kerrys in the Journal, and remembering a great beauty we once had in Ireland, I thought, especially as I had just had some unfortunate experience in Alderneys, that I would try them. I wrote to Ireland, but happening to hear that my friend Dr. Hogg had a good herd of them in Sussex, I wrote to him. The result of our correspondence was his sending me one of his cows in calf for the second time. She is a great beauty, symmetrical in shape, jet black in colour, with very white horns, with limbs like a deer, and altogether quite a picture, she only standing 46 inches high; but her appearance is not the best part of her, for she fully bears out the saying, "Handsome is that handsome does." She calved on February 11th, and in four months after calving she gave us nearly 8 lbs. of butter a week, and two quarts of fresh milk a day besides. I need not say after this that the milk is exceedingly rich and the butter good. She is very hardy, will eat anything, and very gentle and quiet. I do not think I can say anything too favourable for her, and if all the "Streame" herd are like her Dr. Hogg has a very valuable herd, but one he will not long keep if its merits are duly appreciated as they are by—D., Deal.

THE SCOTCH FANTAIL.

A SCOTCH Fantail is all action and motion, in this consists its highest merit. Of course, the nearer its tail approaches the perfect English type the better, but anything like flatness of tail is not to be expected in it. The tail feathers are not so numerous or long, and as long as they are evenly set with no break in the centre some approach to the funnel-shape must be tolerated. The bird should be very small, little more than half the size of the English Fantail. A Scotch Fantail of really high and (as the fanciers call it), "nervous" carriage, when not busy feeding or on the nest, is ever walking on tiptoe, while the motion of the throat is so great that its whole body trembles. We must confess that we do not admire what we consider an exaggeration of this carriage. Birds are not infrequently seen which walk backwards, and even fall backwards as if in paroxysms when they attempt to fly; their heads, instead of being thrown straight back till they touch the tail, are then twisted round in an inelegant fashion, and altogether give them an unnatural appearance. A large flight of Scotch Fantails all playing and trembling is indeed a quaint and pretty sight, and never fails to delight and amuse non-fanciers. Our beau ideal of a Fantail is, however, a combination of the two styles, such as is to be seen in the lofts and show pens of a few of the most successful admirers of the breed. Of course the two varieties have been greatly interbred both by those who know what they are about and by those who do not, but often to the loss of the best characteristics of both, or at least to their general confusion. It is not, however, impossible for an expert breeder to produce a strain with the smallness, elegance, and tremulous carriage of the Scotch variety, yet with tails almost as round and flat as those of the English. We have found better results to follow from the union of a very small Scotch cock and a good English hen than from the opposite alliance. Small Scotch hens are not infrequently indifferent breeders and mothers, or at least produce weakly offspring. The Indian strain to which we have before alluded has, we fancy, been bred into some English strains, which occasionally show traces of it. Its peculiarities are a peak at the back of the head and feathers on the legs. We do not admire these additions, especially as they are generally seen combined with heavy heads and necks.

Now as to the colour of Fantails. To our taste there is none so pleasing as white, it seems the natural colour of the breed, for birds of other colours can very rarely, if ever, be found to come up in form to the excellence of the Whites, and almost always bear traces of a cross in no remote generation. Be it observed that the white is not, like the white of fowls, liable to be tanned by the sun. Heat and sun in no way affects its purity, and Pigeons if kept in a clean place with proper baths will always keep themselves clean. The nearest approach to perfect form which we have seen in other Fans is in the Blacks, which have long been cultivated in India or on the Continent. Blues there are too, but generally too large, deficient in shape of tail, and not of a bright blue, but too ashy a colour. All the Reds and Yellows which we have ever seen have been poor in tail, and not really good in colour.

"Saddle-backs" are a curiosity. A small and fine strain of them is said to have been once imported, but whence nobody ever knew. They should be marked like Turbits—*i.e.*, white birds with wings, all save the flight feathers, of one colour, as red, blue, or black. If very perfectly marked they would be attractive, but we cannot say that we have ever seen such; they generally have coloured thighs, which just spoils what would be a sharp contrast. White birds, too, with coloured tails are occasionally seen produced by German breeders. Laced Fantails have all the web of their feathers disjointed like Silky fowls, and are more peculiar than beautiful. None of the sub-varieties after all equal the real White Fantail, and we know no variety which shows to better advantage when grouped in numbers. A fine collection of White Fantails is lovely. For two years at the Crystal Palace fanciers of the breed had a rare treat in the sight of the Rev. W. Serjeantson's four pairs which won the cup for the best collection. Subsequently a ridiculous change in the conditions of this competition required the collection to consist of at least two varieties. Still at the Exhibition of the Peristeronic Society and in a few private lofts may such sights be seen.

As a rule Fantails are hardy, good breeders, and careful parents, though we have at times found Scotch birds of very high carriage neglect their young when half grown. Everything against which they are likely to break their tails should be kept out of the loft and aviary. We may prevent disappointment by informing young fanciers, that though very perfect Fantails are always valuable from being few out of many, birds of mediocrity have no saleable

worth, and a beginner must be content to consign all such to the kitchen.—C.

VARIETIES.

DEATH OF MR. JOHN HUNTER.—It is with much regret that we have to announce the death of Mr. John Hunter, author of "A Manual of Bee-keeping," and well known as a skilful apiarian. He expired from congestion of the lungs on Sunday last the 27th ult. at his residence at Ealing, aged 48.

— RYHOPE POULTRY SOCIETY.—This Society will hold their annual Show of Poultry, Ducks, Rabbits, &c., on the 2nd of August, on the property of Mr. Joseph Lee, between Ryhope and Sunderland.

— THE POTATO DISEASE COMMITTEE.—At the last meeting of the Parliamentary Committee appointed to inquire into the causes of the failure of the Potato crop, Mr. Robertson of Dublin was examined, and in reply to questions stated that he introduced the Scotch Champion potato to Ireland in 1877, when it was a rough potato of a floury nature. It was most prolific, and had given great satisfaction, and since its introduction had become much finer. It is undoubtedly the best potato for a general crop. The next best to that for resisting disease is the Skerry Blue. He did not approve of the American potatoes, and had not tried any Australian seed. Since the Champion potato was introduced it has very much improved. He thought the best means of preventing the frequency of potato disease is a matter for individual enterprise, and a grand field for the agricultural societies to take up and experiment upon, having the result periodically published for the benefit of farmers; such experiments to be conducted by societies on Government farms if possible. He knew the "Major Bowman" potato. There was not much difference between that and the Champion. There might have been some spurious seed introduced into Ireland, but it had not come under his notice. The manure that in his experience was best for a potato crop was composed of sulphate of potash, nitrate of soda, and superphosphate of lime.

— LECTURES ON APICULTURE.—Mr. Frank R. Cheshire, so well known to the readers of this Journal, has arranged to deliver a series of lectures at the Royal Horticultural Society's Gardens at South Kensington. The first lecture will be given on Tuesday next, July 6th, at 3.30 in the Council-room. Subject, "The Wonders of the Bee Hive." It will be illustrated by living Cyprian, Ligurian, and black bees, and also appropriate models and large diagrams. These lectures are given gratuitously in the interest of apiculture, and will be open to all visitors to the gardens. Mr. Cheshire's thorough knowledge of this subject and his clearness as a lecturer cannot fail to make this course both interesting and instructive, and we hope all the lectures will be well attended.

— THE SHOW OF THE ROYAL AGRICULTURAL SOCIETY AT CARLISLE.—The preparations for the reception of stock, implements, and other exhibits at this Show will be completed in another week. According to the regulations, all machinery, implements, and other articles, except carriages and exhibits in the "seeds and model" departments, must be arranged in complete order by the evening of Wednesday, July 7th. On the following day the Stewards and Judges will commence their inspection, and the trials will begin on Friday morning in some fields near Carlisle. The trials specially assigned for this year in competition for the Society's gold and silver medals are of implements and machines for the cultivation of the land by steam or other mechanical force. The gold medals can only be awarded for distinctly new inventions likely to be of practical use. In addition ten silver medals are offered for new implements exhibited at the Carlisle Show, and the Judges are also empowered to make special awards of medals for efficient modes of guarding or shielding machinery, especially when worked by steam, from contact with persons immediately engaged in attending to such machinery while at work. Horses, cattle, sheep, and pigs will be admitted to the showyard on Friday, July 9th, and must all be in their places by four o'clock on Saturday afternoon. The implement yard will be open to the public on Saturday, July 10th, and the entire Show on Monday morning, when the Judges of the stock will commence their work. The prizes are of a total value of £5700.

FOUNDATION FIXERS.

A CORRESPONDENT requests me to try osiers or split osiers instead of wires, suggesting that the latter with soldered pins are quite beyond the reach of cottagers, while the pins could be stuck through the osier sticks. He asks in conclusion that I may give the results in the *Journal of Horticulture*. In reply, I have already tried an equivalent to osiers, using Venetian blind lath split into narrow strips with a gauge cutter. These answer perfectly, but require fixing top and bottom. Osier sticks would no doubt succeed as well or nearly as well, their disadvantages consisting in their being soft and not perfectly straight. The best way to make these is to take a piece of wood the thickness of which is equal to the length of the pins when cut off. Bore holes in this wood at the distance the pins are to be from each other. Lay your little stick or osier over the holes, and drive your pins through it down to the head, and through the made holes in the wood beneath. Cut your pins off on the other side with cutting pliers, for which old scissors may be made to do duty, when the pins will be of uniform length. This plan for cutting the pins will answer if wire and solder be used instead of wood.—F. CHESHIRE, *Avenue House, Acton, W.*

PREVENTING EXCESSIVE SWARMING.

MY great object this year has been to keep my apiary within bounds, and I am happy to say I have in a great measure succeeded. Thus far I have had but one natural swarm, while I have greatly strengthened my weak hives by the method of treatment adopted. I do not say that in every case or in every year this method of proceeding can be carried out, but under circumstances similar to my own it may be found as serviceable to others as it has proved to me. I therefore give my experience in detail for the benefit of those who may find themselves in a similar position.

I must premise that almost for the first time in my experience as a bee-keeper every stock with which I entered the winter came out of it healthy and active. Not one of them, however, was very strong, and not a few were very weak owing to the great dearth of breeding vigour and the absence of suitable weather for pollen-gathering in the autumn. Still, I never had a healthier set of bees at the beginning of March. By dint of great attention to feeding where necessary, supplying them with artificial pollen and other precautions, several of my stocks became strong enough by the beginning of June to allow of artificial swarms being taken from them. They had completely filled their boxes with brood and were working in supers. Every bee that could possibly be induced to fly was added to the swarms, which therefore were of considerable weight. These I sent off by rail to various parts of the country.

By this means I was enabled to strengthen liberally several of my weak stocks, although these were fast recovering lost ground. The empty boxes with their abundant brood combs were set either under or over the stocks as circumstances dictated. In a few days such a quantity of brood was hatched out that I was able to drive again and strengthen other stocks. By this means I have contrived to bring my whole apiary so forward that, without any apparent check to progress, I have no single hive which does not give me hope of a fair amount of honey in the great July harvest now fast approaching. Among other advantages I was able to give a splendid box full of brood comb to my one swarm. It is now working in two supers, and I see no sign of royal cells yet constructing. From the box out of which it swarmed I am expecting a second swarm in a few days, although, as it was shifted to a new stand according to my invariable custom, it lost nearly all its adult bees, which found their way to the swarm in the old place.

The season thus far has been very fine. If my bees had been in their usual strength in May we should have harvested here a fair quantity of apple and other fruit-blossom honey. As it is, the hives are well supplied, and I have some good combs in sectional supers. At present the bean fields are in splendid blossom, and the white clover is full of promise. There is hope, therefore, of work for our apicultural societies, and an impetus will be given to bee-keeping such as it greatly needs.—B. & W.

OUR LETTER BOX.

Buttercups on Pastures (W. Brace).—These cannot be destroyed unless the turf is burnt, the land being broken up, cultivated for several years, and laid down to pasture again. Even then they will come again after a few years, because where they are usually found they are indigenous to the soil. When the pasture is cut for hay they cannot be separated from the hay, but when cattle feed on the grass as soon as the plants are high enough the blossoms may be cut off with the scythe. This is quite necessary to prevent the plants producing seed, also to prevent injury to butter, as the buttercups are very bitter and spoil

the flavour, but if the milk is sold for immediate use it will not perceptibly injure it. We have not tried the new weed-eradicating machine, but it would probably answer by pulling off the flower and seed heads where the grass is fed off, but not when cut for hay.

Transferring Bees—Removal of Hive—American Mode (S. U.).—We have always thought that the recommendation to transfer twenty-one days after swarming has been founded upon a superficial understanding of the matter. The new queen usually leaves her cell eight days after the departure of her mother with the swarm, while she often, indeed generally, obtains fertilisation at seven days old; but this time is liable to considerable extension, the eight days even reaching fourteen, and the seven, twenty-one. We are then, at the time proposed, likely to be at work when the young queen is seeking a mate, thus making her loss nearly certain, and in this case our hive must sustain damage or even ruin if we are not attentive. The absence of brood at twenty-one days after swarming is helpful, but honey has generally taken its place, making the combs even heavier and quite as difficult to handle. If the weather has been hot and bright generally since the swarm left, twenty-four days after would be practically safe. The nearness of the old stock to your apiary (half a mile) is the real difficulty, and the removal will be nearly sure to involve some loss. It has been lately stated at a convention of American bee-keepers that if a piece of wood several inches square be stood up in front of the hive's mouth, leaving room between it and the hive for the bees to leave and re-enter, and so kept for several days, that the hive may be then removed even a few yards, and the wood taken away with a certainty that the bees will keep to the new stand. The explanation given is that the wood makes the hive dark within, that its removal admits light which warns the bees before they fly out that some change has taken place. This causes them to mark their location and return to it. The idea is new, and we have not had time to try it.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1880.	Inches.	deg.	deg.			deg.	deg.	deg.	deg.	In.
June.										
Sun. 20	29.610	62.2	59.0	E.	58.4	70.2	55.8	121.4	52.4	—
Mon. 21	29.670	64.6	57.3	E.	58.3	74.8	52.3	125.3	48.4	—
Tues. 22	29.728	59.8	56.0	N.E.	59.1	65.3	54.7	102.5	50.3	0.043
Wed. 23	29.759	61.7	58.0	N.W.	58.5	72.0	53.5	124.0	48.2	—
Thurs. 24	29.729	63.7	58.2	N.	58.9	75.0	53.4	125.9	49.8	0.091
Friday 25	29.835	63.2	58.3	N.	59.6	73.4	52.6	124.0	49.7	1.126
Satur. 26	29.839	61.2	58.4	N.N.E.	59.9	70.5	52.3	108.4	49.6	0.931
Means.	29.743	62.3	57.9		59.0	71.6	53.5	118.8	49.8	2.191

REMARKS.

20th.—Rain in early morning, damp and misty till noon, fine afternoon and evening.
 21st.—Very fine, calm, and bright sunshine the whole day.
 22nd.—Damp, misty, and dark morning; fair but cloudy all day, with just a gleam of sunshine; rain in evening.
 23rd.—Bright in early morning, dull towards noon, with intervals of sunshine in afternoon, thunder 5.10 P.M., fine evening.
 24th.—Fine and bright until 3.30 P.M., very overcast with lightning and thunder 5.20 till 5.40 P.M., sharp breeze and heavy rain at 5.30 P.M., rain in evening.
 25th.—Very fine and bright until 4 P.M., dark with heavy clouds, lightning and thunder 4.10 till 5.30 P.M., very heavy rain 4.45 to 7.15 P.M.
 26th.—Damp, close, morning, showers before noon; heavy thunderstorm commenced at 2.20 P.M. lasting till 3.20, nearly nine-tenths of an inch of rain in the hour; slight showers in evening.
 Warmer, with heavy thunderstorm rains on two consecutive days.—G. J. SYMONS.

COVENT GARDEN MARKET.—JUNE 30.

THE Market continues to be well supplied, Strawberries and other small fruit arriving in very large quantities.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½ sieve	2	6	to 4 6	Nectarines.....	dozen	8	0	to 12 0
Apricots.....	box	1	0	2 6	Oranges.....	£ 100	4	0	12 0
Cherries.....	box	1	6	2 6	Peaches.....	dozen	12	0	18 0
Chestnuts.....	bushel	12	0	16 0	Pears, kitchen ..	dozen	0	0	0 0
Figs.....	dozen	10	0	12 0	dessert.....	dozen	0	0	0 0
Filberts.....	£ lb.	0	0	1 0	Pine Apples.....	£ lb.	1	0	3 0
Cobs.....	£ lb.	0	0	1 0	Piums.....	½ sieve	0	0	0 0
Gooseberries.....	½ sieve	6	0	8 0	Raspberries.....	£ lb.	0	0	0 0
Grapes, hothouse	£ lb.	2	6	6 0	Strawberries.....	£ oz.	0	4	0 6
Lemons.....	£ 100	6	0	10 0	Walnuts.....	bushel	0	0	0 0
Melons.....	each	3	6	6 0	ditto.....	£ 100	0	0	0 0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0	to 4 0	Mushrooms.....	pottle	1	0	to 1 9
Asparagus.....	bundle	1	6	5 0	Mustard & Cress..	punnet	0	2	0 3
Beans, Kidney....	£ 100	1	0	0 0	Onions.....	bushel	3	6	5 0
Beet, Red.....	dozen	1	0	2 0	pickling.....	quart	0	0	0 0
Broccoli.....	bundle	0	9	1 6	Parsley.....	doz. bunches	6	0	0 0
Brussels Sprouts..	½ sieve	0	0	0 0	Parsnips.....	dozen	1	0	2 0
Cabbage.....	dozen	1	6	2 0	Peas.....	quart	2	6	3 0
Carrots.....	bunch	0	4	0 6	Potatoes.....	bushel	3	9	4 0
Capsicums.....	£ 100	1	6	2 0	Kidney.....	bushel	4	0	0 0
Cauliflowers.....	dozen	0	0	3 6	Radishes.....	doz. bunches	1	6	2 6
Celery.....	bundle	1	6	2 0	Rhubarb.....	bundle	0	4	0 0
Coleworts.....	doz. bunches	2	0	4 0	Salsafy.....	bundle	1	0	0 0
Cucumbers.....	each	0	4	0 6	Scorzoneria.....	bundle	1	6	0 0
Endive.....	dozen	1	0	2 0	Seakale.....	basket	0	0	0 0
Fennel.....	bunch	0	3	0 0	Shallots.....	£ lb.	0	3	0 0
Garlic.....	£ lb.	0	6	0 0	Spinach.....	bushel	3	0	0 0
Herbs.....	bunch	0	2	0 0	Turnips.....	bunch	0	4	0 0
Leeks.....	bunch	0	0	4 0	Vegetable Marrows	each	0	0	0 0



JULY 8—14.

The following Horticultural Shows will be held during the week:—

8	TH	
9	F	Ludlow (Roses); Torquay (Roses).
10	S	West Kent; Alexandra Palace (Roses).
11	SUN	7TH SUNDAY AFTER TRINITY.
12	M	Coventry.
13	TU	Carlisle; Diss.
14	W	Maldon; Dartford.

A GAY BORDER.

IN a former letter I said I would endeavour to give a description of a border which would for a considerable period in the year be gay with bright hardy flowers. It so happens that there is a long border about 4 feet wide which extends all the length of the terrace in front of the windows of my house, and it has been my labour for years to try and make this gay and bright for, say, eight months in the year. Now this is very difficult, and requires much consideration and a rather large outlay for a few years. I freely own that for a great number of years I have failed in my endeavour, and that I am only just beginning to reap the reward of my labours and outlay.

First I tried Roses, and they were the most satisfactory of all. At the back I had standard Teas and Hybrid Perpetuals, then vigorous-growing Perpetuals on the Manetti, then weak dwarf Teas. During the Rose season this border was beautiful, but owing to the poverty of my soil the season was very short, and for the rest of the year my beds were bare. I then became convinced that the front of a house was not the place for a rosery, and that some retired position was far more adapted to these charming plants, and gradually I began to weed-out my Roses. This was not difficult, as the poor soil proved a winding sheet for most, and the hard winters finished-off the others. I have only a few standard Teas left, and my front is devoted to herbaceous plants and bulbs, which succeed much better. But there are a great number of these latter which, though having flowers interesting in themselves, are quite unsuitable for the purpose I am speaking of. Erigerons, Polemoniums, and others have such small flowers that you require to bend over them before you can see what they are like. It is obvious, then, that they are unsuitable for a prominent bed where gay flowers are required.

There are, however, a great number of others which are highly valuable and greatly to be prized. First of all, for the back row I should employ Delphiniums. My idea is, that the plants in the back row should be the highest, the next medium-sized, and the third and fourth decreasing in size. Nothing, I think, is so useful for our purpose for the back row as Delphiniums and the finer varieties of Pæonia. But there is such an enormous number of varieties of these plants that it is well to know what are the best. So far as my experience goes there is no Delphinium among the light blues more beautiful than Cantab and Cambridge. The colour is exactly

the same as the Cambridge blue, and the spikes are huge. Among the dark or Oxford blues are Formosum, Cælestinum Formosum, Madam Patey, and Coronet. There are, of course, numbers of lilacs and lavenders, and some nearly white all valuable. Between these Delphiniums I should plant white double Hesperis or Rockets. These are grand plants, something like the Stock but much larger. Also the old Cardinal Plant, Lobelia cardinalis, can be employed, which bears most showy crimson or scarlet flowers, and the still more valuable form Lobelia fulgens. The latter plants bloom later than the Delphiniums, which are preceded by the Rockets. So here we have three shades of colours—white, blue, and scarlet in our back row. I should now add another bright colour—viz., yellow, by employing Helianthus, the Sunflower, which is a late bloomer.

We come now to the next row, and the principal flower I should employ there is Lilium candidum, which I should plant in front of the blue Delphiniums. In front of the Rockets I should plant some few of the darker-coloured Pæonies, and a few light-coloured forms in front of the Lobelias. A few vigorous-growing varieties of Phlox must also be placed in this line. From a large number of Pæonies, all of which are beautiful, I should select as darker sorts Madame Labon, Charles Binder, and Isabella Karlitzki; and as lighter, varying from light pink and primrose to pure white, Monsieur Roussilon, Jeanne d'Arc, Caroline Allani, and Madame Vil-morin. Phloxes are so exceedingly numerous that I scarcely like to select any, but The Bride, The Pearl, The Queen, and Mrs. Turner are indispensable for border decoration.

The next line should principally consist of Bearded Irises and Kämpferi. The latter bloom much later than the former. Among the Irises I should plant such grand herbaceous plants as Dielytra spectabilis, the worst of this plant being that it requires so much space; Lychnis chalcedonica, Gaillardia splendens, and here and there such charming plants as Aquilegia chrysantha, the Golden Columbine; Aquilegia glandulosa, and A. cærulea, the grandest of all. Potentillas, though most beautiful, are too strong in habit and spread over such a large space of ground that they must not be employed in a border like this, but double Pyrethrums, Pentstemons, and Campanulas may be grown.

The row nearest the walk should contain only very dwarf-growing plants. There is the very place for that useful and valuable florists' flower the Pansy. If I was asked to name the flower which repaid me more than any other for the care we take of it, I should say the Pansy. It continues in bloom so long, is so hardy, bears flowers so lovely in such countless varieties, and takes up such a small space, that too much cannot be said in its favour. For effect perhaps the fancy varieties are the best. The Gentian family, too, are most valuable for this line, as are also Alpine Auriculas, a few Primulas and Polyanthus. Hepaticas, also, are well suited for this position, Alyssum saxatile, Arabises, and other plants of similar character, not forgetting the best species of Iberis that are so effective in spring and early summer.

A most lovely bed and one which would be gay for a long period may be made wholly of bulbs, but I will reserve my observations on this part of the subject for another letter. I am aware that I have omitted a great number of most beautiful decorative plants which would answer the purpose admirably; but in case anyone desires a greater choice I have,

with the assistance of a great grower of these plants, compiled a list arranged as to colour, all of which bear gay and well-defined flowers. All these I can answer from personal experience are worth growing, and nearly all of them are at present in my collection.

White Flowers.

Anemone japonica Honorine Jobert	Phlox The Pearl, Miss Robertson, The Queen.
Hesperis Matronalis alba fl.-pl. (Double White Rocket)	Oenothera taraxacifolia
Centaurea montana alba	Veronica maritima alba
Dianthus Marie Parr	Pansy Great Eastern and Mrs. Felton
Lilium candidum	Saxifraga granulata fl.-pl.
Pyrethrum alba rosea	Arabises
P. Mont Blanc	Alyssums
Spiraea Aruncus	Irises, selected from the aphylla and amœna section of I. germanica.
Campanula persicifolia alba	
Pentstemon The Bride	

Blue, Purple, and Shades.

Aquilegia cœrulea	C. Van Houttei
A. cœrulea hybrida	Echinops ruthenicus, Senecio pulcher, Irises, selected from the Neglecta and Pallida sections of Iris germanica; Pansies in great variety.
Delphinium formosum	This list can be greatly augmented, but the above include the best sorts for the purpose.
D. Belladonna	
D. Nahamah	
D. Barlowi	
D. Hermann Stenger	
D. Madame Lemoine	
Campanula Hendersonii and grandis	

Yellow.

Harpalum rigidum	Coreopsis lanceolata
Helianthus multiflorus	Potentilla Phœbus
Aquilegia chrysantha	Pyrethrum Solfaterre
Rudbeckia Newmanii	Pansy King Koffee
Lilium tigrinum	

Red, Crimson, and Scarlet.

Pyrethrum Progress	Papaver orientale
P. Hermann Stenger	Potentilla Wm. Rollisson
P. carminatum plenum	Centranthus ruber
Dielytra spectabilis	Dianthus magnificus
Geum coccineum fl. pl.	Phlox Deliverance
Tritoma grandis	P. Lothair
Pentstemon Stanstead Rival	P. coccinea
Lychnis chalcedonica fl. pl.	Monarda didyma
L. fulgens	Lobelia fulgens
Peonies in variety	

—WYLD SAVAGE.

STRAWBERRIES.

UNFORTUNATELY for cultivators the effects of a bad season do not all disappear with it, and signs are not wanting that we have still to suffer, both indoors and out, for the sun's absence during 1879. True, the Strawberry crop indoors has been an agreeable surprise, but I suspect a great deal of the credit belongs to our newly introduced sorts. There are possibly more plants of Vicomtesse Hericart de Thury and President grown in pots than of all other sorts together. Many of us indeed—myself amongst the number—grew nothing else during the season just past, and we have to congratulate ourselves on our choice. Had we stuck to our old friend Keens' Seedling it is more than probable that our early fruits would not have been so plentiful, for Keens' Seedling and its near relatives do not succeed unless they are well ripened, and last autumn we knew that ripening Strawberry crowns was out of the question. Let us not say, then, that our old practice was wrong and that we need not take so much care in the future. I still think it was perfectly right, and that our present success is owing to our possessing more accommodating varieties than we formerly did.

There are several peculiarities about Vicomtesse Hericart de Thury which distinguish it from all the Strawberries, the chief of which are—it will fruit at any time it is required; it is only when forced it can rank as a first-class fruit; it will ripen almost as well without sun as with it; and so long as it is exposed to some amount of air while ripening it is as good gathered out of a hothouse as from an intermediate one, while placing it when ripe in a house with a lower average temperature than 55° actually makes the quality deteriorate, and yet it is only by placing them in a comparatively low temperature with abundance of air that we can obtain the proper flavour of Keens' Seedling and many others. These peculiarities of Hericart de Thury make it altogether the best friend to the Strawberry forcer that he has had introduced

for a long time; and I would suggest to the raisers of new varieties that they take this one in hand and add size to it, which when grown indoors is the only quality it lacks. I have had several fruits this season which would turn the scales with an ounce weight; but these were, I should say, exceptional for this sort, and I have never had the average approach such a weight.

President, in my opinion, is the best variety to come in from the middle of May till the outdoor fruit ripens, it having every good quality at that time; but whatever others may have done, I have never been able to make sure of it before the time named. I still layer all the runners in the fruiting pots, and believe I gain a fortnight's time by so doing, besides the economy of labour in a busy part of the year. And there is another very important thing which is often overlooked: under this system one person can place all the soil in pots for fifteen hundred or two thousand plants, as it does not take long to ram them firm, and one pot is not likely to differ very much from another, while for repotting that number of plants two persons at least are necessary to accomplish it in a suitable time, and no two persons ever can do them exactly alike, consequently the watering which suits those potted by one person may not be just the thing for those done by another. Were I to take charge of a number of plants of any kind, however common and easy to grow they might be, which I wanted to do to the best of my ability, I should prefer potting every one of them myself rather than trust them to be done by the best gardener in England.

The Strawberry seems to be one of the few fruits which are independent of bad seasons. Let the preceding summer be ever so bad, we may be tolerably sure of having some Strawberries in the open ground if it pleases the birds, slugs, and spring frosts. Insects are not troublesome to them, and therefore their cultivation when so many other fruits are a general failure is not likely to decrease. President is without doubt the best midseason Strawberry. Eleanor does well with me for a late kind, but I will not say it is the best for everybody. I am still on the look-out for a better early one than Keens' Seedling, as although it generally does well here it is not without its faults, but I cannot yet see my way clear for discarding it. If a very early variety is wanted Black Prince is undoubtedly the best, but in large establishments Black Prince of less than half an ounce in weight can hardly pass muster close on the heels of President forced to the size of an Egg Plum, and of better flavour than its lilliput brother.

I find the red and white Alpine Strawberries exceedingly useful in autumn, and there are people who prefer their flavour to that of any other Strawberry. Alpines are best treated as annuals. Sown in warmth in February, and planted out in April, 15 or 18 inches apart, they will fruit freely the same season, and continue bearing till frost stops them. Runners planted in spring, having the flowers kept off till July, will do almost as well as seedlings, and can be grown by those who have no house or frame; but in this case, too, a fresh plantation should be made every year if fruit an inch long is wanted.—WM. TAYLOR.

THE RHODODENDRON.

MOST welcome was the note upon Rhododendrons on page 479 of vol. xxxviii. The few sorts named were good, but the list was too brief even for a selection, for there are some of the older varieties so excellent as to be quite indispensable. Such distinct and magnificent sorts as Grand Arab, Barclayanum, Warrior, Geranioides, Queen of the West, Majesticum, and Lady Eleanor Cathcart should never be overlooked, although hardly any of them have had many flowers this year—another of the baneful effects of gloomy, chill, dripping 1879. Lady Eleanor Cathcart has been a brilliant exception with its profusion of bright rosy pink flowers. I have planted several of this charming variety in mixed beds of Rhododendrons, and luckily placed one strong plant on turf near some Conifers and Portugal Laurels to see if it would form a specimen worthy to occupy a conspicuous position; and glad enough am I that this was done, for it and some dozens of other kinds so situated are becoming more shapely and larger than they ever could do in crowded beds. Once established, in two or three years they become a thicket, so that one has to re-arrange and transplant for years in order to give all of them a chance to grow and become fully ornamental. Gladly is this work turned to again and again, for it repays the pains bestowed upon it doubly, affording grand materials for the formation of new clumps, the boundaries of which in turn become enlarged and extended.

The popularity of the Rhododendron is now thoroughly established. Everybody admires it. It forms a prominent feature in every new garden, and is a novel and delightful innovation in many an old one, whence it has routed the dull heavy-looking common Laurel. I lately saw a leading article loud in its praise

in a daily paper. Writers of books of travel often grow enthusiastic in their description of its beauty in a wild state, often insisting that it is never seen in its full splendour in this country, and when they tell of its growing to the size of an Oak tree and being laden with thousands of its gorgeous flowers—a huge mound of vivid colour, we are inclined to agree with them. In Miss Gordon Cumming's charming volumes "From the Hebrides to the Himalayas," there is an account of the Rhododendrons on the Hill of Jakko, Lower Himalayas, one or two sentences of which I must crave space for. "The hill of Jakko is a perfect paradise. It is clothed from base to summit with the richest mixed timber, chiefly the Indian Oak, with a Holly-like leaf, and the dark glossy green of the Rhododendron trees with their gorgeous masses of blossom, the most vivid scarlet, shaded with deep crimson. The only thing to be regretted is, that their glory is so short-lived. Early in May they are on the wane, and by the end of the month a few withered blossoms are all that remain to tell of their bright short lives. But when they begin to flutter down in the breeze they fall like a shower of fire, and alight on the richest carpet of Maidenhair Fern and blue Dog Violets, which everywhere clothe these hanging woods, so that you can scarcely set your foot on the earth without crushing a tuft of such treasures as would enliven the heart of an English gardener."

Such an enchanting scene we may not hope to achieve in the less favoured climate of this country; but we may do much. We have already extended our flowering season to more than twice the length of these grand Hindoo wildings, and my especial object in writing this paper is to urge upon everybody having the requisite amount of space at their disposal to plant some of our best varieties singly in the most favourable situations for their development. Some of the earliest plants of the common *R. ponticum* are from 30 to 40 feet high in more than one garden. Is it too much to hope that another generation may see it become a tree "rivalling the Oak in height?"

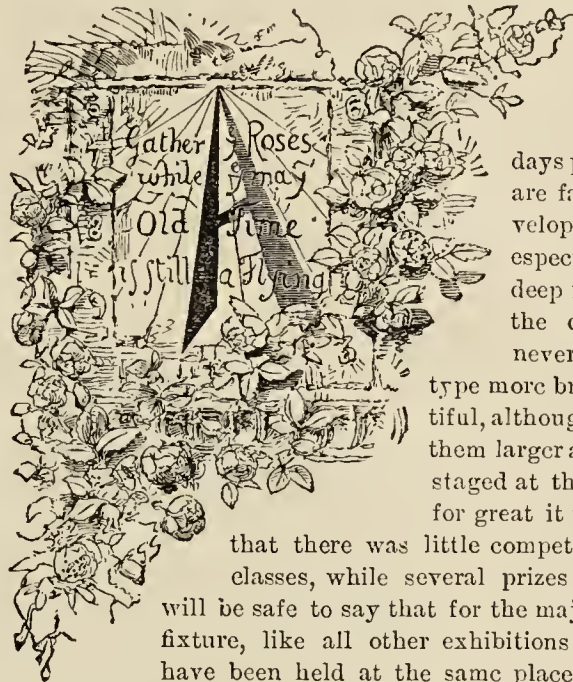
Let us also take good heed to turn it to fullest account as a shrub. It is impossible to plant it in the wrong place. On the most *recherché* terrace garden, by the side of woodland walks, by the margin of water, upon the hottest, driest, sunny slope, or the most exposed wind-swept promontory, in the densest shade under the drip of trees, it thrives alike—is equally ornamental; and although it does not bloom when much shaded, yet the deep green finely shaped foliage is always pleasing. Had I to design a large public garden no inconsiderable part of it should be broken up boldly into banks and hollows clothed with Rhododendrons, Azaleas, and Kalmias, with walks winding about among them, and an occasional open plateau commanding the finest effects of massing and colour combinations. This should form a feature of especial importance quite distinct from and shut off from the rest by masses of lofty trees, at once a screen and a foil—a setting of soft green to enhance the brilliancy of the many coloured flowers during the too brief season of their expansion. —EDWARD LUCKHURST.

MR. JOHN DOMINY.

ON opening your esteemed Journal of to-day (July 1st), I was delighted to see such a truthful likeness of Mr. John Dominy, who has for so long been the valued director of the Veitchian nursery at Chelsea. In my humble opinion you deserve the thanks of all horticulturists for having given portraits of two of the most useful gardeners of the time—I beg to use the word gardener in its best and widest sense—Robert Fortune and John Dominy; one a most successful collector, the other apart from his business tact and high cultural abilities, a man who led science by his practice as a hybridiser of Orchids and Nepenthes—the aristocracy of the horticultural world. We have had portraits of gardeners and horticulturists by the dozen, but you have struck a chord of sympathy with those of the two gentlemen I have named, both of whom have done so much in the quiet unostentatious manner so indicative of sterling merit. Poor Robert Fortune died before half the present generation of horticulturists knew his worth; fortunately we have John Dominy still with us. Shall his merit die with him unrecognised by his fellows, or will our brethren give him with their good wishes something like himself—simple, useful, and good, to remind him of the active part in the battle of life through which he has passed, and from which he has so recently retired? All that is wanted is a token of good will from those who recognise his ability or revere him as a staunch and true friend. Those who know Mr. Dominy best will be aware how far his thoughts or wishes are from desiring anything in the shape of a "testimonial," yet anything of a spontaneous expression of good will on the part of his compeers is welcome to any man who feels that he has done his "level best" to deserve

it. That Mr. Dominy does deserve such an expression of respect is beyond question, and I shall be most happy to add my own mite towards such an object.—DUBLINENSIS.

THE NATIONAL ROSE SOCIETY, CRYSTAL PALACE. JULY 3RD.



ALTERNATE showers and sunshine, which occurred for several

days previous to this Show, are favourable for the development of Roses and especially for imparting a deep rich glossy colour to the dark varieties. We never saw Roses of this

type more bright fresh and beautiful, although we have often seen them larger and fuller, than those staged at this great tournament, for great it was notwithstanding

that there was little competition in some of the classes, while several prizes were withheld. It

will be safe to say that for the majority of growers the fixture, like all other exhibitions of the Society that have been held at the same place, was some days too

early. The Hereford Roses were indeed in fine condition, and consequently the greatest prize ever provided for Roses, the fifty-guinea silver challenge cup offered by Messrs. Cranston & Co. for forty-eight single blooms, was won after a close struggle by Thomas Jowitt, Esq., The Old Weir, Hereford. The first chance for this coveted trophy was secured by R. N. G. Baker, Esq., Heavitree, Devon, in 1877; in 1878 Mr. Jowitt was in the premier position, and according to the conditions only these two exhibitors were eligible to compete for the final possession of the cup in 1879; but as, owing to the extreme inclemency of the weather last year, neither of them was able to stage collections worthy of such a prize, it was mutually agreed that the great Rose duel should be postponed until the present Show. The collections were worthy of the fame of the two celebrated cultivators, and so close were they in merit that the opinions of rosarians founded on a brief examination previously to the judging were about equally divided as to the verdict, the majority being perhaps in favour of the Heavitree blooms. The judging was done with infinite care by the President of the Society (Rev. Canon Hole), Rev. G. N. Pochin, Messrs. G. Paul, Cant, and Arthur Turner. Every bloom was closely examined and its points determined (six points being the maximum for grand flowers), a process which occupied considerably over an hour; when on adding up the figures and giving a certain number of points to the Devonshire blooms for their brilliancy of colour, it was found that something under twenty points remained in favour of Mr. Jowitt. This out of a possible total of 288 shows how close was the race, and intense anxiety was manifested by the members of the Society who were entitled to a private view, which they enjoyed before the verdict was given.

Mr. Jowitt's blooms in the eup stand were Annie Laxton, Nardy Frères, Capitaine Christy, Duke of Edinburgh, Baronne de Rothschild, Mons. Noman (small), Beauty of Waltham, Madame Victor Verdier, Laurent Descourt, Mlle. Eugénie Verdier, Marie Van Houtte, A. K. Williams (splendid), Duchesse de Vallombrosa, Sultan of Zanzibar, Etienne Levet, E. Y. Teas, Clotilde Rolland, Madame Charles Wood, Dr. Andry, Maréchal Niel, Fisher Holmes, François Michelin, Exposition de Brie, fine; Abel Grand, splendid; François Louvat, Marquis de Castellane, Charles Lefebvre, Elie Morel, fine; Edouard Pynaert, full; Marie Finger, Comtesse d'Oxford, Marguerite de St. Amand, all excellent; Henri Ledechaux, Horace Vernet, rather small; Hippolyte Jamain; Abel Carrière, very rich and good; Madame Lacharme, very fine; Lord Macaulay, Sir G. Wolseley, Souvenir d'Elise, a most beautiful bloom, the premier Tea Rose in the Show, to which was awarded the medal given by Mons. Renaerts of Antwerp; Le Havre, Princess Beatrice, full; Louis Van Houtte, rich, good; Marie Cointet, excellent; Marie Baumann, grand; Madame Furtado, fine; Duc de Wellington, Alfred Colomb, fine; and La France.

Mr. Baker's stand contained splendid examples of Camille Bernardin, Sir G. Wolseley, Baronne de Rothschild, Marguerite Brassac, Catherine Mermet, Exposition de Brie, Marie Baumann, Charles Lefebvre, and Madame Charles Wood a magnificent bloom, as perfect as a Rose can be imagined, of A. K. Williams, the premier H.P. bloom in the Show, and awarded the medal offered by M. Renaerts; Pauline Talabot, Duke of Connaught, Duc de Montpensier, Alfred Colomb, Comte Raimbaud, Annie Williams, Marguerite de St. Amand,

Hippolyte Jamain, Baron de Bonstettin, Madame Lacharme, Marie Rady, all very good; Xavier Olibo, Mons. Fournier, La France, Duke of Edinburgh, Olivier Delbomme, Capitaine Lamure, Duchesse de Caylus, Capitaine Christy, Lord Macaulay, Magna Charta, John Stuart Mill, Fisher Holmes, Le Havre, Star of Waltham, Madame Hippolyte Jamain, Jean Sury, Madame Charles Wood, Hippolyte Jamain, Auguste Rigotard, E. Y. Teas, Ferdinand de Lesseps, Pierre Notting, medium to small; François Michelin and Edouard Morren, rather coarse; Marquise de Mortemart, flat; and a small example of Madame Victor Verdier.

Mr. Jowitt's stand contained, perhaps, fewer extra grand blooms than the other, and also fewer rather small and thin examples; the majority were firm, full, and solid, and, on the whole, it was a very regular and good stand. Mr. Baker's blooms were more variable in size, a few very grand and others too small, but all remarkably fresh and of unsurpassable richness in colour. It was hard to lose with such a stand, but on close inspection the great majority of rosarians accepted the decision of the Judges as being correct, and Mr. Jowitt was duly congratulated on his great achievement.

Continuing the amateurs' exhibits, many of which were highly meritorious, we found eight collections in class of thirty-six single blooms. After an extremely close contest the premier position was won by Mr. James Brown, gardener to A. J. Waterlow, Esq., Great Doods, Reigate, with a very regular stand of medium-sized blooms, but remarkably fresh and well coloured, the foliage also being in excellent condition. The fine Teas gave great weight to this collection, and the bloom of *Innocenta Pyrola* must have run the *Souvenir d'Elise* above mentioned very hard for "premier." Madame Willermoz, Bouquet d'Or, Belle Lyonnaise, and Alba Rosea were all in fine condition; the best of the H.P.'s being Louis Van Houtte, Marguerite Brassac, Madame Victor Verdier, Dupuy Jamain, and Madame Victor Verdier—an attractive and admirably staged collection. Mr. R. N. G. Baker followed, the varieties A. K. Williams, Alfred Colomb, Ferdinand de Lesseps, Baronne de Rothschild, Duke of Connaught, La Havre, and John Stuart Mill being better than any H.P.'s in the first-prize collection, but several others were rather small and thin, while the Teas were few and not of striking merit. The remaining prizes in this class went to Mr. R. N. G. Baker, who was a very close second, Mr. Jowitt, Mr. Davis, The Square, Salisbury, and Mr. Hollingworth, Maidstone, in the order named, all the stands containing some excellent blooms, and several that had not attained to their best condition.

There was great competition in the class for twenty-four single blooms. Mr. Baker was an excellent first, some of the blooms being grand, others small, but all fresh and bright. Of remarkable merit was Ferdinand de Lesseps; E. Y. Teas and Alfred Colomb were fine, and Madame Berthe du Bresnil de Montchateau was especially telling. Mr. Sargent, Reigate; Mr. Jowitt; Mr. W. G. Sharp, Birchin Bridge, Horsham; Mr. Pemberton, Round House, Havering-atte-Bower, Romford; and Mr. F. Warde, West Farleigh, Kent, respectively had the remaining prizes, and the Judges must have had no light task in deciding on the relative merits of the several stands.

Thirteen collections were staged in the class for eighteen single blooms. Mr. Thomas Gravely, Cowfold, securing the ten-guinea silver cup offered by Mr. R. N. G. Baker with very neat, fresh, highly coloured, and compact blooms. Especially rich were Louis Van Houtte, E. Y. Teas, Ferdinand de Lesseps, Duc de Rohan, A. K. Williams, and Abel Carrière, while Marie Rady, Auguste Rigotard, Marie Baumann, and Madame Lacharme were in admirable condition. Mr. Frederick Warde was second with generally larger blooms, the finest being Edouard Morren, Ville de Lyon, Charles Lefebvre, and Marie Baumann. Rev. E. L. Fellowes, Wimpole Rectory, Royston, was placed third with a rather irregular stand, in which La France was splendid, Baronne de Rothschild and Auguste Rigotard excellent, Charles Lefebvre good, and Abel Carrière rich.

In the class for twelve distinct varieties, three trusses of each, there were seven competitors, the general quality of the exhibits being admirable. Mr. R. N. G. Baker gained the chief award with a collection of fresh, even, and brightly coloured blooms, including fine examples of Camille Bernardin, Alfred Colomb, fine; Baronne de Rothschild, Xavier Olibo, Mons. E. Y. Teas, exquisite form; Marie Rady, and Duke of Connaught. Mr. T. Jowitt was an excellent second, his blooms of Mons. E. Y. Teas, Marie Baumann, and Madame Lacharme being very fine. Mr. J. Davis and Mr. G. Sharp were third and fourth respectively with very fair collections.

The class for twelve single trusses was remarkably well filled, no less than eighteen collections being staged, and the competition was very close throughout. The premier position was easily obtained by Mr. J. Ridout, gardener to J. B. Haywood, Esq., Woodhatch Lodge, Reigate, with exceptionally handsome blooms, of good form, substance, and colour, and as fresh as could be desired. The following varieties were capitally represented—Mons. E. Y. Teas, very fine; Comtesse d'Oxford, François Michelin, Duke of Edinburgh, Beauty of Waltham, Mons. Victor Verdier, Charles Lefebvre, Etienne Levet, La France, Marie Baumann, A. K. Williams, and Mons. Crapelet. G. Baker, Esq., Holmfels, Reigate, followed with neat and fresh blooms, A. K. Williams and Marie Rady being notable for their symmetry and colour. The third prize was secured by the Rev. E. L. Fellowes; the fourth, fifth, and sixth being obtained by the Rev. Alan Cheales, John Wakeley, Esq., and T. F. Burnaby Atkins, Esq., Halstead Place, Sevenoaks, all with very neat specimens. In

the class for six distinct varieties of Cheshunt-raised Roses, Mr. T. Jowitt was the only prizetaker, the ten-guinea silver cup presented by Messrs. Paul & Son being secured by him with fair examples of Duke of Edinburgh, Princess Mary of Cambridge, Lord Clyde, Annie Laxton, Cheshunt Hybrid, and Sultan of Zanzibar.

Eighteen collections were staged in the class for nine single blooms. That excellent cultivator, Mr. Ridout, well won the chief position, the most noteworthy flowers being Edouard Morren, Marie Baumann, Charles Lefebvre, Marquise de Castellane, Beauty of Waltham, Ville de Lyon, and Baronne de Rothschild, all of which were fine; a few Teas in the stand being fresh but small. Rev. Alan Cheales, Brockham Vicarage, Surrey, was placed second, his stand containing among other good blooms a charming Niphetos and a rich and compact Charles Lefebvre. Mr. Strange, Aldermaston, Reading, was a very close third with generally larger but less firm and full blooms. The gem of the stand was a charming example of Madame Caroline Kuster. Mr. W. H. Wakeley, Rainham, Kent, and Mr. Edward Mawley, Addiscombe, Croydon, had respectively the fourth and fifth prizes in this class, both staging several compact fresh blooms.

There were six collections in the class for six blooms, E. Horne, Esq., Park House, Reigate, being placed first with fresh, full, and good examples of Charles Lefebvre, Marquise de Castellane, Fisher Holmes, Madame Fillion, Marie Baumann, and Baronne de Rothschild. Mr. Scott, the Treasurer of the Society, Clinton Villa, Wimbledon, was second with a bright and good stand; Mr. F. Burnside, Farningham House, Farningham, third; and Mr. Tranter, Upper Assenden, Henley-on-Thames, fourth.

In the class for six suburban Roses, three out of the four prizes went to Wimbledon. Mr. Scott was an excellent first, winning the silver plate offered by Mr. Mawley with Paul Neyron, not often seen in such excellent form; Capitaine Christy, Etienne Levet, Eugénie Verdier, Maréchal Niel, and Le Havre. Mr. Edwin Saunders, Rose Villa, Palmerston Road, South Wimbledon, was second with neat blooms. Mr. Arthur W. Tyrrell, The Cottage, South Norwood Park, S.E., third with irregular blooms, Charles Lefebvre being splendid; and Mr. John E. Coleby, 8, St. George's Road, Wimbledon, third with large and too much expanded examples. Eight collections were staged in this class.

Five attractive stands were exhibited in the class for twelve Teas or Noisettes. Mr. Hawtreay secured the premier position with clean smart blooms of *Souvenir d'Elise*, *Souvenir d'un Ami*, Comtesse de Nadaillac, Catherine Mermet, Adrienne Christophle, bright; Boule d'Or, Madame Lambard, Devoniensis, Rubens? Moiré, Madame Hippolyte Jamain, and Niphetos. Mr. Charles Davies, The Grammar School, Aynhoe, Banbury, was an excellent second, with (amongst others) splendid examples of Bouquet d'Or, Alba Rosea, Catherine Mermet, and Jean Ducher (?). Rev. E. L. Fellowes was a good third, his Catherine Mermet being the gem of the stand; and Mr. Hollingworth fourth. If the two blooms to which attention is directed were correctly named, they afford evidence of how greatly Tea Roses are influenced by soil and climate.

There were also six much-admired stands in the class for six Teas or Noisettes. Mr. Jowitt was originally placed first, but was afterwards disqualified for having by an oversight included Cheshunt Hybrid, which is contrary to the conditions; Mr. Edward Horne was therefore placed first for a charming stand, in which Adrienne Christophle was very rich; Marie Van Houtte, excellent; and neat examples of Catherine Mermet, Maréchal Niel, and *Souvenir d'un Ami*. Mr. W. H. Wakeley, Rainham, was a good second, and Mr. John Wakeley third.

In the suburban class for six Teas the silver cup was withheld, and Mr. Hawtreay was awarded a second prize for the only stand exhibited.

In the class for eight trebles in various stages of development—full blown, half blown, and buds—the first prize went to Mr. Sargent, Reigate (a silver-gilt medal offered by the "Journal des Roses"); second to Mr. A. Evans, Marston, Oxford; and third to Mr. Hawtreay. The first-prize collection was very bright and fresh.

Mr. Jowitt was the winner of the five-guinea cup offered by Mr. Symons, in the class for twenty-four sweet-scented Roses, Mr. Hawtreay being second.

In the open class for twelve Roses not in commerce previous to 1877 Mr. Charles Turner, Slough, had the chief position with Mrs. Laxton, fine; Madame Lambard, small but pretty, with waxy salmon pink petals; Penelope Mayo; Mrs. Harry Turner, of the Charles Lefebvre type; Hon. George Bancroft, large deep rose; Madame Alexander Bernaix, Charles Darwin, Richard Laxton, Madame Emma All, Harrison Weir (small but rich), and Duchess of Connaught. Messrs. G. Paul & Son were second with generally larger flowers; Duke of Teck and Earl of Beaconsfield, very good; and Madame G. Luizet, very effective. Messrs. Cranston & Co. followed, their most notable blooms being Constantin Fretiakoff and Julius Finger, a well-flowered Rose of the Marie Baumann class. There were many small flowers in Rose stands, and more time is necessary for producing the varieties in superior condition. In the corresponding amateurs' class for six blooms Mr. Hawtreay secured the first prize.

In the Maréchal Niel class Mr. Cant was first with twelve blooms, remarkably rich, but not large; they were additionally interesting, as all were cut from the original plant introduced into England in 1864. It is growing on a Briar stock, and is trained to a south wall.

There were seven exhibitors of twelve single trusses of Marquise

de Castellane, the chief prize being gained by Mr. J. Walters for beautiful symmetrical blooms, very bright and altogether excellent. Messrs. Davison & Co., White Cross Nursery, Hereford, were placed second with blooms but little inferior to Mr. J. Walters; and Messrs. Cranston & Co. were third with fair blooms. Mr. J. Walters staged the only collection of twelve trusses of Reynolds Hole, and was awarded the first prize for very fair blooms, neat and good colour. Nine competitors entered in the class for a dozen blooms of any dark Hybrid Perpetual Rose, Mr. J. Walters being first with good examples of Marie Baumann; Messrs. Cranston second with Horace Vernet,

very fine; and Messrs. Paul & Son with Charles Darwin, in good condition. Twelve collections of light Hybrid Perpetuals were staged, the chief prize being secured by Mr. R. N. G. Baker with handsome blooms of Baronne de Rothschild; Messrs. Cranston followed with Madame Lacharme, very fine; and Mr. T. Jowitt with the same variety, very slightly inferior in quality. The only exhibitor of "twelve trusses of any Tea or Noisette not named in the schedule" was Mr. J. Brown, gardener to A. J. Waterlow, Esq., Great Doods, Reigate, the premier award being obtained for Belle Lyonnaise, in superb form. There were only two exhibitors in the class for "three



Fig. 6.—PRIMROSE POLYANTHUS. (See page 20.)

trusses of any new seedling Rose not yet in commerce or announced." Messrs. Paul & Son, Cheshunt, secured the chief prize, which was offered by G. P. Hawtrey, Esq., with R. N. G. Baker, a Hybrid Perpetual Rose of a rich rose colour, with broad petals, of good substance and form. The second prize was withheld.

NURSERYMEN'S CLASSES.—The six competitors in the class for seventy-two distinct single trusses staged collections, all of which included blooms of good substance, but the majority were neat rather than large and very bright in colour. The chief prize, which consisted of a silver cup presented by John Hollingworth, Esq., and £5 from the Society, was awarded to Messrs. Cranston & Co., Hereford,

for an excellent collection, in which the following varieties were represented. Mons. E. Y. Teas, very fine; Princess Beatrice, Annie Laxton, good; Dupuy-Jamain, a handsome bloom; Xavier Olibo, excellent; Souvenir de la Malmaison, Dr. Andry, Hippolyte Jamain, La Duchesse de Morny, La Rosière, Devoniensis, Centifolia Rosea, very large and good form; Mons. Gabriel Tournier, Jean Cherpin, handsome; Auguste Nieumann, Madame Marie Finger, Sir Garnet Wolseley, handsome flower; Madame Furtado, Fisher Holmes, Mdle. Marguerite D'Ombraïn, Baron de Bonstettin. Marchioness of Exeter, good; Maurice Bernardin, neat; Madame Thérèse Levet, compact; Louis Van Houtte, good; Baronne de Rothschild, very fine; Le

Havre, fine; Madame Hippolyte Jamain, Général Jacqueminot, grand in colour and size; Madame Gabriel Luizet, Etienne Levet, fine; Madame Larcharme, good; Constantin Fretiakoff, fresh; Capitaine Christy, good; John Hopper, Chas. Lefebvre, neat; Comtesse d'Oxford, great size and substance, an exceptionally fine bloom; Jean Liabaud, Mrs. Baker, Duchesse de Vallombrosa, handsome form; Prince Camille de Rohan, Abel Carrière, Niphotos, Jean Sury, Edouard Morren, grand; Beauty of Waltham, very neat and good; Madame Bravy, Horace Vernet, Marguerite de St. Amand, Auguste Rigotard, good; La France, fine; Lord Macaulay, good; Marquise de Castellane, excellent; Madame Chas. Wood, very handsome, fine colour; Elie Morel, Reynolds Hole, Mons. Noman, very large; Duke of Edinburgh, bright; Catherine Mermet, Marie Baumann, large; Cheshunt Hybrid, Jean Souperet, Mdle. Marie Cointet, John Stuart Mill, handsome; Marquise de Mortemart, Ferdinand de Lesseps, Madame Nachury, Alfred Colomb, Mdle. Eugénie Verdier, large and good; Sénateur Vaisse, fine; and Belle Fleur d'Anjou. Messrs. Cranston well deserved the honour they received, for many of the blooms in their collection were exceptionally fine, but they were especially fortunate in escaping the spring frosts which seriously affected the plants of many other nurserymen who are less favoured in regard to position.

Messrs. Curtis, Sanford & Co., Torquay, were second with a fine selection of varieties, mostly the same as those enumerated in the preceding collection. Blooms of the following were particularly noticeable for their excellent quality:—Sénateur Vaisse, Royal Standard, François Michelin, Exposition de Brie, Marie Baumann, Mdle. Marie Rady, and Dr. Andry. Messrs. Paul & Son, Cheshunt, gained the third prize with neat fresh blooms—Marie Baumann and Alfred Colomb being excellent. Messrs. Keynes & Co., Salisbury, were fourth, their blooms being rather uneven and somewhat rough, but several were of good form and colour.

Messrs. Cranston & Co. were again victorious in the class for forty-eight triplets with a handsome collection that included many admirable blooms. Exposition de Brie, Duchesse de Vallombrosa, Alfred Colomb, John Stuart Mill were extremely well represented, and Général Jacqueminot was magnificent. Messrs. Curtis, Sanford & Co. followed with an even collection, very bright and fresh; Messrs. Paul & Son and Messrs. Keynes & Co., the only other exhibitors in the class, receiving the two remaining prizes.

Six stands of thirty-six varieties were exhibited. Mr. James Walters, Mount Radford Nursery, Exeter, was first with a fresh and bright collection, followed by Mr. C. Turner, Slough, Mr. F. Cant, Mile End Nursery, Colchester, and Mr. W. Farren, How House, Cambridge, all with blooms very close in merit. Out of five collections, twenty-four triplets, the chief honours were accorded to Messrs. Cranston & Co., who staged handsome examples of Horace Vernet, Madame Lacharme, Exposition de Brie, Etienne Levet, La France, and Mons. Noman. Mr. G. W. Piper, Uckfield, Sussex, was a good second; Mons. E. Y. Teas, La Rosière, La France, and Marie Baumann being particularly fine. Messrs. Keynes & Co., and Paul & Son, were third and fourth respectively. The competition was especially keen in the class for twenty-four single trusses, nine admirable collections being exhibited. Mr. J. Walters secured the premier award with fine specimens of Abel Carrière, La France, Alfred K. Williams, Marquise de Castellane, Marie Baumann, Ferdinand de Lesseps, and Dupuy Jamain among others. Mr. C. Turner followed with neat blooms well selected. Mr. W. Farren and Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, being third and fourth with fair examples.

Nine competitors entered for twelve Teas or Noisettes, the first prize being secured by Mr. G. Prince, Oxford, with handsome blooms of Anna Ollivier, Marie Van Houtte, very beautiful; Rubens, Alba Rosea, Jean Ducher, Maréchal Niel, Souvenir d'un Ami, Souvenir de Paul Neyron, Souvenir de Madame Pernet, and Souvenir d'Elise Vardon. Messrs. James Mitchell & Sons, Uckfield, were second with a neat collection, Messrs. Paul & Son being third. There were only three entries in the class for six Teas, three trusses of each; the six-guinea silver cup offered by Thomas Hollingworth, Esq., as first prize being secured by Messrs. James Mitchell & Son with very neat specimens of Souvenir d'Elise Vardon, Souvenir d'un Ami, Catherine Mermet, Joséphine Malton, Niphotos, and Paul Neyron. Messrs. Cranston & Co. followed very closely, Marie Van Houtte and Madame Willermoz being especially noteworthy. Messrs. Paul & Son were third with fair blooms.

Among the miscellaneous exhibits were excellent collections of Roses from Messrs. Veitch & Son, Chelsea; Bunyard & Co., Maidstone; Laing & Co., Forest Hill; and Mr. George Prince, Oxford, the latter staging several beautiful boxes of Moss Roses vigorously grown on the seedling Briar. Mr. H. Cannell also contributed cut blooms of Zonal Pelargoniums and Verbenas, which were very greatly admired.

After the judging had concluded a large gathering of the members and their friends assembled in the south dining-room for a *déjeuner à la fourchette*, the Rev. Canon Hole, President of the Society, in the chair. Many of the most distinguished rosarians were present, and Messrs. Ellwanger & Barry, the celebrated nurserymen of Rochester, New York, were amongst the guests. The President, in one of his genial speeches, spoke of the success of the Society and of the valuable services which he as admiral of the ship received from the Secretaries, Treasurer, and Committee, and said that thus served he might go down into his cabin and be quite at ease as to its safety. He then proposed the only toast given, "The visitors," which was appropriately replied to by Mr. Ellwanger, who thanked his

brother rosarians for the kind and hospitable reception they had received, and hoped he might see some of those present at "the other side of the water, when they would be only too glad to show them the same hospitality."

WE append the following critique of the Show by a well-known rosarian, which will be welcome to many readers:—

The great field day of rosarians has come and gone—the day that is looked forward to with as great anxiety and interest by lovers of Roses as the Oxford and Cambridge boatrace is by University men, or the Derby by sportsmen. Perhaps more than the usual interest was felt in the Show this year on account of the great duel between two of the leading amateur exhibitors having to be fought for the final round. The interest, therefore, as to who should finally win the handsome silver claret jug which Mr. Cranston so generously presented was most keen. There was not, so far as I am aware of, any betting on the event, but if there had been I presume it would have been even. Mr. Jowitt has perhaps if anything a stronger Rose soil, but Mr. Baker has the advantage of a milder more genial climate, and certainly a more sheltered position. Whether, then, the cup was to be carried off finally to The Old Weir near Hereford, or was to decorate the sideboard of that most generous host Mr. Baker, this was an issue that attracted more attention than all the rest of the Show together. The Judges, who had the most important and by no means to be envied task, were the men most qualified to fill this post. Most carefully did they perform their task. Every Rose was discussed separately, the number of points to be given to it was decided by the majority and put down on a piece of paper, and when the amounts came to be added up it was found that Mr. Jowitt was the victor in a well-contested fight by a majority of twenty-three, the points being—Mr. Jowitt 182, Mr. Baker 159, but to Mr. Baker's number a few points were, I think, added for general brilliancy of colour.

As a great friend of both gentlemen I shall be very careful what I say upon the issue. As it seems to me, who am entirely unprejudiced and only anxious to give your readers a free and unbiassed opinion, Mr. Baker's blooms were much superior to Mr. Jowitt's in colour, while the latter surpassed him in size and evenness. In form both were equally good. Mr. Jowitt had finer Teas, while Mr. Baker's dark Roses were in some instances much superior. Perhaps the very weakest Rose in Mr. Jowitt's box was Charles Lefebvre, while in Mr. Baker's this was one of the finest. A. K. Williams in this stand was awarded the prize as the premier bloom (H.P.) in the Show, while Mr. Jowitt's magnificent bloom of Souvenir d'Elise was in this cup stand adjudged the same prize as a Tea. The best blooms I noticed in Mr. Baker's stands were, besides the two above named, Thomas Mills, E. Y. Teas, Duke of Edinburgh, Jean Sury, Alfred Colomb, Marie Van Houtte, and Magna Charta; while in Mr. Jowitt's stand, besides the Tea I have before named, there were splendid examples of Marie Baumann, Eugénie Verdier, La France, Marie Van Houtte, Maréchal Niel, Sultan of Zanzibar, Etienne Levet, Baronne de Rothschild, and Mons. Noman.

These stands were in my opinion undoubtedly the best in the Show. The contest is now over, and I daresay not only are the principal persons concerned glad, but I have no doubt they would prefer that it should not be repeated. It becomes almost too personal a fight when it is confined only to two men, however great they may be.

And now to speak of the Show generally. This—I cannot help stating it—was not up to the average. I do not think I ever, except last year when the Show was held so early that hardly anyone could come to it, saw so few nurserymen contend for the great prizes. Mr. Cant was only represented by a box of Maréchal Niel, which were not only very good, but were rendered most interesting by the statement that they were cut from the original plant sent over in 1864, now growing against a south wall at Colchester. Mr. George Paul certainly showed, but was as little like his usual form as a street German band is like the Crystal Palace Saturday orchestra. Mr. Cranston, who secured the first prize for seventy-two, was very fair, but I have seen him show infinitely finer. He astonished everyone, however, with his blooms of the old favourite Général Jacqueminot. There was very great doubt whether one of these blooms would not be selected as the premier bloom, but the Judges, as I said, gave it to A. K. Williams. Mr. Turner exhibited in the smaller classes very well; and Mr. Mitchell in the large classes and Teas; but none of them were up to their old form.

This was not the case with the leading amateurs. Both Mr. Baker and Mr. Jowitt showed very finely. Perhaps the best Roses, at all events in the smaller classes if not in the whole Show, were those with which Mr. Ridout won the first prizes for twelve, nine, and six varieties. These were really grand. Mr. James Walters of Mount Radford Nurseries, near Hereford, whose nursery and Roses I have often described in the Journal, showed remarkably well in the class for twenty-four. He was first in every class for which he competed—first for twelve blooms of Marquise de Castellane and Reynolds Hole, and also first for twelve light Roses. One of the finest boxes I have ever seen staged consisted of twelve blooms of Baronne de Rothschild with which Mr. Baker secured the first prize for twelve blooms of any variety; these were superb. Mr. Prince of Oxford showed a beautiful box of Teas, securing first honours. His Alba Rosea, Jean Ducher, and Souvenir de Paul Neyron were very fine; his Maréchal Niel was a fresh young bloom but rather small, but it had the great recommendation of not disturbing the evenness of

the stand. Mr. Cranston surprised a great many visitors with the marvellous bloom of Madame Charles Wood which he showed in his seventy-two. His other Roses were very fine, but the best were the two I have named, and Horace Vernet, John Stuart Mill, Mdle. Eugénie Verdier, Sir Garnet Wolseley, and Comtesse d'Oxford.

You will have no doubt a complete account of the Show furnished you by your special reporters, so that I need not go into details as to prizes. To sum up, the Show was a very enjoyable one, but not so large as some we have seen, as it was conspicuous by the absence of some great exhibitors, but ever to be remembered as the one at which Mr. Baker and Mr. Jowitt fought their final round in the Palace of Crystal.—WYLD SAVAGE.

CHAPTERS ON INSECTS FOR GARDENERS.—No. 7. NEW SERIES.

THE Hymenopterous order, or what is commonly called the "order of bees," includes many species which are very unlike bees in appearance and habit; it is even true that in the group of the true bees, or "flower lovers," there are necessarily placed species in which there is only slight resemblance to the typical bee. It has been stated that the Hymenoptera are divided firstly into two large sections—those that have no stings, and those provided generally with such a weapon. Having dismissed the former of these already, we now arrive at the last section of the Aculeata, the stinging bees, very numerous, and in size ranging from the big humble bee to the little Sphecoides, which is really about the size of an average ant. We shall refer to these in a future issue, and in the meantime we direct attention to the family Dasygasteræ, which receives its scientific name from the circumstance that the female insects have a mass of hairs beneath the abdomen, which serves as a pollen brush. These bees, according to their different habits, have been called mason bees, carpenter bees, leaf-cutters, and upholsterers; the last group, which line their nests with petals, are not recognised as natives of Britain. Even in the same species we have at times a singular variety of habit; the common mason bee, *Osmia bicornis*, while in certain situations showing itself partial to cliffs or dry banks, elsewhere resorts to decaying tree stumps, or burrows into the mortar of an old wall. *Osmia leucomelana* (fig. 7.) makes choice of dead twigs of Bramble. The mother bee removes the pith for 5 or 6 inches, leaving the intervals to separate the cells. A sufficient quantity of food is placed with an egg in each cell, and the whole is covered up with a vegetable paste, evidently manufactured by the insect. In this instance each young bee can work its way out, not interfering with the cells of its brethren. Other *Osmias* pursue the practice of nest-making in branches or in stumps. A few species, of which *O. aurulenta* is a prominent example, though occasionally burrowers in banks, often save themselves this trouble by looking for deserted snail shells, that of *Helix hortensis* being taken by preference. There the cells, from four to six, are placed in succession within the whorl; but if the bee chances to find an empty shell as broad as that of *H. aspersa* the cells are placed in pairs. The leaf-cutter bees are represented in the genus *Megachile*, and several of these are abundant in gardens; *M. centuncularis*, for instance, the females of which also enter hothouses and conservatories, where they are perhaps erroneously regarded as visitors having designs upon fruit, whereas their object is to take fragments of leaves—the *Geranium* is rather a favourite with them. Out of doors we cannot fail to notice the clean cuts made by this species and its congeners in the Rose, the Privet, the



Fig. 7.—*OSMIA LEUCOMELANA* (A CARPENTER BEE).

Laburnum, and other shrubs. The nest of the leaf-cutters is usually worked in solid earth, and the burrow is formed on the plan of most solitary bees, but it is carefully and evenly lined with pieces of leaf, and the divisions between the cells are of the same substance. The Anthophoræ are another group of mason bees. These, having formed a burrow, line it with a material of their own making, sand or clay softened with saliva. All the bees of this family are smaller than the hive bee, some much smaller, in colour usually dull shades of black, brown, or grey.—C.

RICHMOND HORTICULTURAL SOCIETY.

JULY 1ST.

THIS flourishing Society held its annual Exhibition on Thursday last in the Old Deer Park; and although in the number and quality of the exhibits it was quite a success, yet the unfavourable weather somewhat marred what would otherwise have been one of the best local shows of the season. During the morning and part of the afternoon several heavy storms passed over, but towards evening the weather became more favourable, and great numbers of persons visited the Show. The Princess Mary of Cambridge and the Duke of Teck honoured the Society by visiting the Exhibition during the afternoon, and were conducted through the tents by some of the Committee.

Five large tents were devoted to the exhibits—viz., one to chiefly the special classes for plants, one to the general plant classes, one to fruit and table decorations, one to vegetables, and one to cottagers' productions. The second of those mentioned above contained the most attractive portion of the display of plants, for in it were arranged not only the groups in competition, stove and greenhouse plants, Orchids, Ferns, Pelargoniums, and fine-foliage plants, but there were also several large miscellaneous collections from various nurserymen. The groups arranged for effect were very tasteful, the prizes being obtained by Messrs. Hooper & Co., Covent Garden; Mr. W. Brown, St. Mary's Grove Nursery, Rich-

mond; and Mr. Hudson, gardener to H. J. Atkinson, Esq., Gunnersbury House, Acton. The latter exhibitor staged a pretty group, that was very similar to the one so greatly admired last year, when he obtained the first prize. Messrs. Jackson and Son were the only exhibitors of nine stove and greenhouse plants, obtaining the chief prize with fair specimens, a *Bougainvillea glabra* being particularly fine. Mr. C. Attrill, gardener to C. J. Freake, Esq., Bankgrove House, Ham, and S. A. Davis, Esq., Anglesea House, Surbiton (gardener, H. Hinnell), had the only collections of six specimens, neat and fairly well flowered.

Pelargoniums were not numerous but in fine condition, being chiefly exhibited by H. Little, Esq., Hillingdon Place, Uxbridge (gardener, Mr. Wiggins); W. Selwyn, Esq., Selwyn Court, Richmond; Dr. Francis, and Mr. Attrill; Mr. Little's plants as usual taking precedence. Ferns were well represented by several collections of handsome plants in vigorous health. Mr. Hudson gained the chief prize for eight exotic Ferns with fine examples of *Davallias*, *Gleichenias*, and a good *Dicksonia antarctica*. J. Wigan, Esq., Clare Lawn, East Sheen (gardener, Mr. D. East), and J. S. Rutter, Esq., The Cedars (gardener, Mr. B. Morrell), followed with fair specimens. The Rev. W. Finch, Woodlands, Kingston Hill (gardener, J. Crafter), had the best collection of twelve hardy Ferns, Mr. Morrell and Dr. Francis taking the remaining prizes. Fine-foliage plants were shown by Sir H. W. Parker, Stawell House, Richmond (gardener, Mr. W. Bowell); J. E. Meek, Esq., Poulett Lodge, Twickenham (gardener, Mr. Bates); and Dr. Francis, who obtained the prizes in the order named with well-grown plants. Orchids were not very numerous but generally in fair condition; the chief prizes were awarded to C. Hart, Esq., Beaufort House (gardener, Mr. Reeves), Messrs. Jackson & Son, and A. E. Stearns, Esq., Radnor House, Twickenham (gardener, Mr. C. Barry).

In this tent the groups of dwarf Roses in pots from Messrs. Veitch and Son, Chelsea, and Lee & Son, Hammersmith, were extremely attractive, and were greatly admired by the numerous visitors. The General Horticultural Company staged a fine group of miscellaneous plants at one end of the tent, and Messrs. Veitch & Son an equally elegant one at the other end; Messrs. Osborn & Sons, Fulham, Mr. Kinghorn of Richmond, and H. Little, Esq., also contributed collections of plants that combined to form a very pleasing display.

In the large tent near the above were numbers of miscellaneous plants exhibited in competition for special prizes, and those offered by the Society to growers in the district. Ferns were particularly good, Mr. Barry being first with six exotic species, his collections including several healthy specimens. J. Wigan, Esq., was second, and Dr. Francis third with neat plants. Caladiums were well shown by Messrs. Wigan and Rutter, and the best Colenses were from Lady John Chichester, Cambridge House, Twickenham, and J. Flack, Esq., Twickenham (gardener, Mr. Sallows), both collections containing well-coloured plants. Mr. Rutter and J. Masters, Esq., Petersham (gardener, Mr. G. Logan), also staged two collections of Pelargoniums fairly well flowered. Mr. Bates had the finest single specimen plant, gaining the chief prize with a handsome example of *Allamanda Hendersoni* in excellent condition, and bearing flowers of great size and substance. The other exhibits in that tent were chiefly plants for table decoration, *Mignonette*, and a bright group from Messrs. J. Laing & Co., Forest Hill.

The fruit, table decorations, and cut flowers occupied a third tent of considerable dimensions, the stands of flowers being arranged on a long table in the centre, the fruit at each end, and the cut flowers at the sides of the tent. The fruit was abundant and generally of fine quality. Grapes were well shown by Mr. Bates, Mr. S. Nunn, Mr. Wells, Mr. Wagstaff, gardener to J. H. Elam, Esq., Isleworth, and Mr. Feist, gardener to R. Ashton, Esq., Staines. Strawberries were numerous and of excellent quality. Peaches, Nectarines, Cherries, both singly and in the collections, were all well represented. Of the cut flowers the Roses were most noteworthy, a very fine display being produced by the numerous stands. The blooms were very fresh and bright, and some were exceptionally fine. Some of the chief prizetakers were Messrs. Paul & Son, Cheshunt; Mr. D. Robin, Richmond Hill; Mr. Bates; J. Bull, Esq., Redholme, Teddington; Mr. W. Scott, Clinton Villas, South Wimbledon; Mr. G. P. Hawtreay, Aldin House, Slough; and Mr. Moorman, gardener to the Misses Christy, Coombe Bank, Kingston, the latter exhibitor staging two excellent first-prize collections.

Vegetables and the cottagers' productions occupied the remaining tents, and were both numerous and well shown, the vegetables being especially notable for their fresh healthy condition.

The arrangement of the Show was generally satisfactory, and considering the great number and excellence of the exhibits we regret that the pressing demands upon our columns have compelled us to report this fine Exhibition thus briefly.

THE CULTURE OF VANDA CÆRULEA AND VANDA TERES.

VANDA CÆRULEA.—This is one of the most beautiful Orchids in cultivation, with its pale lilac flowers produced in October, and lasting in beauty four or five weeks. It is considered a cool Orchid. I have tried to grow it in a cool house and was very unsuccessful; I then placed it in the East Indian house, where it commenced growing at once, producing roots from the stem and soon filling the basket. I grow the plant in an oak basket with dried sphagnum moss chopped fine, and all the dust well sifted out, and one-third of crocks well mixed with the sphagnum. I suspend the basket close to the glass under one of the ventilators in the roof of the house. When the plant has rooted into the sphagnum and is making its growth it requires abundance of water and plenty of air with a moist atmosphere, and when growth is completed very little water is needed during the winter months. The sphagnum must not be allowed to become too dry, or the plant will shrivel and lose its lower leaves.

Some years since I almost lost this Vanda, but just at the time it was at its worst I was reading Sir Joseph Hooker's "Himalayan Journal," where it was stated that *Vanda cærulea* was found growing upon a tree lying across a stream. The plant was in all its native luxuriance, with frost upon the flowers, and Sir Joseph wrote, "If those who exhibit this Orchid at Chiswick saw the plants growing in their native habitat they would not stew them at home." After reading the above I took the hint. Next morning *Vanda cærulea* was suspended under the ventilator as I have described, and there it remains. It began to grow freely in the spring, and I obtained flowers once more.

VANDA TERES.—The foliage of this Orchid is very much like a large Rush. The flowers are large, red and yellow, and are produced in June and July, and last a month in beauty. There are two varieties; one is very shy in flowering and is not worth growing, the other is a profuse bloomer. It is also one of the easiest of Orchids to grow, requiring very little attention, therefore it is a

most suitable plant for beginners in Orchid culture. I grow this species on a flat piece of cork, on which it is secured with thin copper wire. The roots soon take hold of the cork. It is grown in the East Indian house, and in four or five years it makes a fine bushy plant. I cut the tops of the plants off when they are too long, and fasten them to the bottom of the cork; by that means the plant becomes bushy. After growing in the East Indian house the time mentioned, I placed it in a house with a minimum temperature of 50° in winter, and during hard frost 45°; in the cool house it grows and flowers most profusely. When growing it should be syringed twice a day, the atmosphere of the house being kept moist. All it requires in winter is a slight sprinkling with the syringe when the sun shines.—JOHN NUNNS.



WE have received many pleasant letters during the week relative to the enlarged form in which this Journal now appears. It is gratifying to us to know that the change is so much appreciated, and we thank all our correspondents for their kind expressions of approval. Especially are we gratified by the commendatory remarks of two of our oldest horticultural contemporaries, who have spoken so kindly and generously of our endeavours to maintain a high standard of horticultural journalism.

— ON the evening of Wednesday, the 30th ult., the ROYAL BOTANIC SOCIETY'S EVENING FETE was held as usual in the Society's Gardens at Regent's Park, the exceptionally fine weather and admirable arrangements resulting in a gathering of remarkable brilliancy and success. In addition to the illuminations, which were carried out with excellent taste, there were Messrs. Carters' exhibition of annuals, Mr. Anthony Waterer's Rhododendrons, and groups of Roses from Messrs. W. Paul & Son, Waltham Cross, all of which proved very attractive. In the competition for bouquets and arrangements of flowers several exhibitors took prominent positions, among them being Messrs. Osborn and Son, Fulham; and Messrs. Henderson & Son, Maida Vale. During the evening it is stated that upwards of seven thousand visitors attended the Gardens.

— ON the occasion of the above fête the visitors enjoyed the opportunity of witnessing the flowers of *CEREUS GRANDIFLORUS*, the Night-flowering Cereus. A plant in the conservatory expanded its blooms early in the evening, and they continued in fine condition until midnight. It attracted great attention from the numerous visitors, comparatively few of whom had ever seen the flowers of this interesting species.

— THERE is now flowering and fruiting in the greenhouse at Chiswick a fine plant of *FRAGARIA INDICA*. For growing in baskets, or in pots or pans placed on pedestals, this distinct species of Strawberry is highly suitable. It is of rapid slender growth, the "runners" drooping down forming an elegant fringe of about 3 feet, studded with small bright yellow flowers and small highly coloured fruit. In its natural drooping and prolific character it resembles *Saxifraga sarmentosa*, and promises to be of considerable utility for various decorative purposes. It appears to produce flowers with fruit in various stages of development, at the same time it is likely therefore to be attractive during a long period. The fruit is of no use for dessert purposes.

— IN the same garden there is a fine display of IVY-LEAVED PELARGONIUMS, of which one of the best varieties yet raised is Belle d'Orleans. This is quite distinct from all others by its naturally upright growth, and it produces its magenta pink double flowers in the greatest profusion. With the aid of a few small

sticks the plant will form a handsome specimen, and be of great value for greenhouse and conservatory decoration. It has been certificated, and is worthy of that high mark of approval. Mons. Dubois has been similarly honoured. It has very large and fine deep pink double flowers, and a good plant cannot fail to be very effective. These varieties were raised by M. Lemoine, and there are some others of great promise under number. Several older varieties, grown in the form of loose pyramids, are also extremely attractive, and show how well adapted these plants are for conservatory decoration during the summer months.

— A CORRESPONDENT informs us that *RUBUS ODORATUS* is now one of the finest ornaments in the Cambridge Botanic Garden. It has an immense profusion of deep rose flowers, each blossom 2 inches across, and the leaves, which are extremely handsome and Vine-like, measure in some cases 10 inches across. It is of upright habit and grows with great vigour. A native of North America.

— A CORRESPONDENT writes that "it is generally considered undesirable or impracticable to TRANSPLANT ONIONS, but has been agreeably undeceived by seeing some flourishing in a gentleman's garden." In some districts it is a regular practice with cottagers to obtain surplus plants from the squire's garden when the crops are being thinned, and rely on them for their winter supply of Onions. We have seen many fine beds and crops from transplanted seedlings, and if the work is done in showery weather and the plants are not inserted too deeply they seldom fail to produce good and well-formed bulbs. If the weather is dry the roots are "puddled" in a mixture of soil and soot before planting.

— MADAME NUYTENS VERSCHAFFELT, widow of the late Jean Nuytens Verschaffelt, whose death we recently announced, intends carrying on the nursery business at Ledeborg, Ghent, with the same efficient manner that it was conducted by her lamented husband, and intends to deserve the patronage she hopes to receive from the horticultural public.

— THE appearance of SMALL FRUITS IN KENT is generally satisfactory. Raspberries are looking well, and the crops are likely to be fair notwithstanding the severe check they have experienced in some parts. Strawberries though bearing well have not such enormous crops as last year, or as a grower said, "More were spoilt on the ground last year than will be gathered this season."

— THE Corporation of Carlisle has just presented to the Royal Gardens at Kew the HERBARIUM OF BISHOP GOODENOUGH, who, having resided for some time at Ealing, obtained botanical specimens from Kew and other London gardens. He was afterwards made Bishop of Carlisle; was born in 1743, and died in 1827. The deceased Bishop's herbarium, now handed over to the national herbarium at Kew, was made during the last quarter of the last century, and contains many interesting and valuable specimens. Bishop Goodenough was at one time Treasurer of the Linnean Society.

— IN one of the houses at Shirecliffe Hall, Sheffield, the residence of H. E. W. Watson, Esq., a good specimen of that attractive plant *TABERNÆMONTANA CORONARIA FL.-PL.* is now flowering, and Mr. Udale, the gardener, states that he finds it of considerable value for cutting purposes. It is of comparatively easy culture and flowers freely, the fine white fragrant blooms proving very acceptable wherever flowers are in demand. Like many other old plants of undoubted merit it is not so common in gardens as might be expected, although the cause of its neglect is by no means evident.

— AN esteemed correspondent has sent us a report of the LIMERICK HORTICULTURAL SHOW, which he describes as a large and good one, but the pressure on our columns is so great that

we can only find space for the following extract—The exhibits of Lords Dunraven and Clarina, Lady Massey, Mrs. Russel, Mrs. Boyd, and Mr. Bannatyne were specially noticeable, and in the several classes obtained merited distinction. The show of Roses in the private growers' class, notwithstanding the year being by no means most favourable, created great admiration from the Judges, and subsequently from the great throng of visitors. For the stand of twenty-four blooms Lord Clarina, Lady Emly, and Lady Massey deservedly received the prizes in the order named. But still more commendable, though not for competition, were the large stands of Roses, Pelargoniums, and Tuberous Begonias of Messrs. Saunders, nurserymen, Cork, which excited much admiration. The show of fruit for the season was splendid, and little less deserving were the vegetable collections.

— A LARGE bed of DELPHINIUMS in BATTERSEA PARK is just now very attractive. The plants are associated with variegated Maples, the pale and deep blue spikes of the flowers showing with great effect amongst the silvery foliage of the Acers. The employment of such stately plants as Delphiniums in the London parks is a step in the right direction, and they might with advantage be largely increased. When planted in deep rich soil they form pillars of beauty 6 to 8 feet high, and they produce a rich effect before the ordinary bedding plants are in beauty. Delphiniums are readily raised from seed, which if saved from good named varieties many beautiful forms are produced. Some of the best varieties of Foxgloves would also have a fine effect at this season in suitable positions in the parks, as the spikes would show to great advantage against a background of shrubs, as also would Hollyhocks a little later in the summer.

— IN Mr. Jowitt's cup collection of SWEET-SCENTED ROSES at the NATIONAL ROSE SHOW the following varieties were staged:—Mons. E. Y. Teas, Le Havre, Charles Lefebvre, Beauty of Waltham, Sir Garnet Wolseley, Catherine Mermet, Madame C. Crapelet, Maréchal Niel, Exposition de Brie, Sénateur Vaisse, Jean Liabaud, Marie Baumann, Souvenir d'un Ami, Alfred Colomb, La Rosière, La France, Baron de Bonstetten, Madame Bravy, Duc de Wellington, Madame Knorr, Louisa Wood, Marie Van Houtte, and two others, the names of which our reporter was unable to ascertain owing to the dense crowd surrounding the stands.

— AT the BRIGHTON HORTICULTURAL SHOW, which a correspondent describes as being a very good one, the following were the successful exhibitors in the principal Rose classes:—In the open class for forty-eight varieties the prizes went to Messrs. Piper, Mitchell & Sons, and Balchin, who all staged good blooms. In the class for twenty-four blooms Mr. Wollard, Lewes, and Rev. C. Hales, Woodmancote, were the respective winners. For twenty-four Roses grown in Sussex the prizes were awarded to Mr. W. G. Sharpe, Birchin Bridge; Mr. Gravely, Cowfold; and the Rev. R. C. Hales. In the class for twelve blooms Mr. A. Slaughter, Steyning; Mr. Edwards, Worth; and Rev. G. Banks, Worth, were the prizetakers. Amongst the fruit the fine Muscat Grapes of T. Holman, Esq., and the James Veitch Strawberries from Mr. Rutland, Goodwood, attracted much attention.

— WE are informed that the TOMATOES at the LYNN SHOW, exhibited by Mr. S. Castle of The Vineyard, West Lynn, were a notable feature. Amongst his exhibits were bunches of Suttons' Conqueror and Osborn's Improved Red, each weighing 3 lbs. 7 ozs.; twelve separate fruit of the aggregate weight of 5 lbs. 3 ozs., and two others of 12 ozs. and 16 ozs. respectively. The Judges remarked that they were the finest they had ever seen.

— MESSRS. J. J. THOMAS & Co., wireworkers, 362, Edgware Road, desire us to state that they have opened premises for the sale of their horticultural appliances at 87, Queen Victoria Street, London.

— ZONAL PELARGONIUMS.—I am endeavouring as far as possible to form a complete list of all Zonal Pelargoniums now in culture. Will you permit me through the medium of your columns to ask all nurserymen who feel disposed to assist me to send their catalogues to me as soon as possible?—C. C. EWBANK, *The Vicarage, Langford, Biggleswade.*

THE OXFORD ROSE SOCIETY'S SHOW.

ON Tuesday last the twenty-ninth annual Exhibition of Roses of this Society was held in the beautifully picturesque grounds of Headington Hill Park, a charming position for a flower show, for which the Society is indebted to the kindness of George Herbert Morrell, Esq. The exhibits of Roses were not quite so numerous as usual, and in consequence the two large tents devoted to them were not nearly filled, several of the stages being comparatively bare. It is to be regretted that the Society has reduced the value of the prizes, for when these were of a more liberal character the Exhibition was not only extensive, but the collection could be very favourably compared with those seen at the more pretentious London shows or elsewhere. After nearly thirty years' experience the Society must be aware that the only way to induce exhibitors to come forward freely is to offer substantial prizes, and no doubt were the original system returned to the results would be equally satisfactory.

Although, as we have indicated, the entries were not quite so numerous as could be desired, yet there was some compensation for this deficiency in the general good quality of the blooms. Several handsome collections were staged containing blooms of great substance, fair size, symmetrical form, and bright clear colours; indeed, in the latter respect, taking the average of the blooms, they have been scarcely excelled at any Show this season. The weather unfortunately proved most unfavourable, rain falling frequently during the afternoon; notwithstanding, however, a large company of visitors assembled, being doubtlessly as much attracted by the opportunity of a promenade in Headington Park as by the Show itself. All the arrangements were quite satisfactory, and reflect much credit upon Mr. Greenaway, the Secretary.

Taking the open classes first, the principal one was that for forty-eight triplets, only two exhibitors entering in competition. The premier position was accorded to Messrs. Cranston & Co., Hereford, for four boxes of handsome blooms that were scarcely inferior to their seventy-two at the Crystal Palace; indeed some of the varieties were even better represented. The second prize was obtained by Mr. Charles Turner, The Royal Nurseries, Slough, with blooms that were chiefly inferior to the others in substance and size, but they were very neat and fresh. Louis Van Houtte, Beauty of Waltham (good), Devienne Lamy, La France, and Dr. Andry were the best in quality. For forty-eight single trusses Messrs. Cranston & Co. were again first with a similarly handsome collection, including fine examples of Duchesse de Vallombrosa (neat), Mons. E. Y. Teas, Horace Vernet, Le Havre, Marie Baumann, and John Stuart Mill. Mr. Turner followed with the only other collection in the class, staging neat and fresh examples of well-selected varieties. The best thirty-six single trusses were from Messrs. Cranston, who thus carried off the three chief prizes in the open classes, the quality of the blooms being similar to that distinguishing the other exhibits of that firm. Mr. George Prince, Oxford, was a good second with compact brightly coloured blooms, Mr. Charles Turner taking the third place with fair specimens. In the class for twelve blooms of a Hybrid Perpetual Messrs. Cranston were first with Lord Macaulay, excellent colour; and Mr. G. Prince second with good examples of Duchesse de Vallombrosa. Mr. G. Prince staged the best twelve Teas or Noisettes, followed by Messrs. Cranston and Mr. John Mattock, Bath Nurseries, Headington. Two collections of Mr. Bennett's new pedigree Roses were staged, the first prize being secured by Mr. George Prince with fair examples of the Honourable George Bancroft, Duchess of Connaught, Jean Sisley, Duke of Connaught, Beauty of Stapleford, and Pearl. The second prize was obtained by Mr. John Tranter, Upper Assenden, Henley-on-Thames, with Duchess of Westminster, Beauty of Stapleford, Viscountess Falmouth, Duchess of Connaught, and the Hon. George Bancroft, small but fresh.

In the open classes for amateurs some good collections of blooms were shown. The finest collection of thirty-six single trusses was staged by Mr. C. M. Davies, Grammar School, Aynhoe, Banbury. His blooms were exceptionally fine and fresh, and the varieties well chosen. George P. Hawtreay, Esq., Aldin House, Slough, followed with a collection of great merit. For twenty-four single trusses J. T. Strange, Esq., Aldermaston, Berks, the Rev. E. L. Fellowes, and Mr. C. M. Davies carried off the prizes with excellent blooms in fine condition. For twelve Teas or Noisettes Mr. G. P. Hawtreay was an excellent first, followed by Mr. C. M. Davies and the Rev. E. L. Fellowes, all staging fair specimens.

The most important amateur class was that for twenty-four varieties, single trusses. The chief position was awarded to the Rev. C. Eddy for admirable blooms of good substance and colour, Marie Baumann being particularly fine. Mr. William Freeman closely followed the Rev. E. Renwarne Wellings, Stamford Vicarage, Farringdon, Berks, and Mr. Alfred Evans, Marston, Oxford. For eighteen varieties Mr. Davies easily obtained the chief award with good and

fresh blooms. Mr. J. Bradley, Christchurch College, Oxford, was second with a neat collection, the two remaining prizes being secured by Mr. J. Freeman and Mr. J. Tranter. Six entries. Mr. A. Evans had the best twelve single trusses, followed by Mr. J. Wheeler, the Rev. E. L. Fellowes, Mr. Freeman, Mr. A. Callcutt, and Mr. H. Poulter, Oxford. For six trusses of one variety there were seven entries, the prizes being obtained by the Rev. E. Renwarne Wellings, Stamford Vicarage, Farringdon, Berks, first with La France, very fine; Mr. C. Callcutt, Holywell Street, Oxford, second with Louis Van Houtte, fair; Mr. W. T. Barnes, Cowley Road, Oxford, third with Marquise de Castellane; and the Rev. E. L. Fellowes, Wimpole Rectory, Royston, Cambridgeshire, fourth with Baronne de Rothschild. For six triplets Mr. Callcutt and Mr. Henry Poulter, George Street, Oxford, were the prizetakers with fair examples. The best twelve triplets were from the Rev. C. Eddy, Bramley Rectory, Basingstoke, who staged a very neat fresh collection, including good blooms of Duke of Edinburgh and Marquise de Castellane. The Rev. E. L. Fellowes was a close second, the Rev. E. Renwarne Wellings third, and Mr. W. Freeman, Queen Street, Oxford, fourth, there being five entries. Six single trusses were well shown by Mr. F. Harris, Walton Crescent, Oxford; Mr. Way, Jesus College; Mr. F. Collins, and Mr. W. Harris, all of Oxford, who obtained the prizes in the order named. The prizes for six Teas or Noisettes were obtained by Mr. Alfred Evans, Marston, Oxon; Mr. J. Wheeler, Kingston Road, Oxford; and Mr. J. Tranter with small blooms.

Strawberries were shown by Mr. G. Prince, Mr. C. Callcutt, Mr. E. Collins, and Mr. C. Taylor, who gained the prizes in the order named with fine fruits of President and James Veitch. Collections of Roses were also exhibited by Messrs. Cranston & Co. and Mr. George Prince, not for competition.

PRIMROSES AND POLYANTHUS.

THE POLYANTHUS.—Having shown, I hope satisfactorily, that the Primrose, the Cowslip, and the Oxlip are quite distinct from one another, I shall now proceed to an account of the most important of the varieties which have emanated from them, and which has been called the Polyanthus.

Like many other plants that are subjected to cultivation, the Primrose, the Cowslip, and the Oxlip sport into various forms and colours widely different from those of the wild types when grown in gardens or raised from seeds of cultivated plants, and the Polyanthus is one of them. It is supposed by some to have originated from the Oxlip. There is, however, no good ground for this belief. I have no doubt that the form which we call Polyanthus has originated from all three. After considerable experience in raising large numbers of seedlings annually I am convinced that the Polyanthus comes as much from the Primrose as from the Cowslip or Oxlip, although from its blooming in the form of an umbellate scape it may be supposed that it comes from the two latter. These seedlings when they bloom produce all the three normal forms, and there are frequently many of the Cowslip while there are few of the Primrose and Oxlip.

In speaking of the Polyanthus it must be borne in mind that I am alluding to the border Polyanthus in any remarks I am about to make. I have not had any experience with that form of the flower which is called the florists' or laced Polyanthus, yet I have no doubt that its origin is the same as that of the border varieties. There are therefore two distinct sections of the Polyanthus, one represented by the florists' or laced Polyanthus, and the other by the border flowers, or such as are grown for garden decoration.

The laced Polyanthus is a plant of comparatively modern origin. I can find no account of it in the works of the old florists of the seventeenth century, nor even in those of the early part of the eighteenth. The early editions of Miller's Dictionary make no mention of them, nor does Bradley appear to have known them, though he was a constant visitor among the nursery gardens of London in his time. In the last edition of the Dictionary edited by himself Miller speaks of the Polyanthus having been much improved during the last fifty years; but this improvement, I suspect, refers to the border varieties, and not to the prize flower of the florists. It was not till towards the end of the last century, when a standard of merit was set up by the Lancashire florists, that the characteristics of a prize Polyanthus were fully set forth, and a strain selected in accordance with this standard, which has remained distinct to the present time. The most distinguishing character of the prize Polyanthus is the smooth laced edge of the corolla, and hence they are called laced Polyanthuses.

Of the border Polyanthus there are two distinct forms which were recognised by the old florists, and which are equally well marked now as they were long ago. These are the Primrose Polyanthus and the Cowslip Polyanthus. I herewith furnish illustrations representing both of these; fig. 6 (page 25) being that which has the Primrose for its original, and fig. 8 (page 31) that which comes from the Cowslip. On referring to these it will be seen that the Primrose Polyanthus has the calyx tubular with long sharp teeth, and

as long as the tube of the corolla. The leaves are winged to the base of their footstalks. In the Cowslip form the calyx-tube is wide and inflated, with blunt teeth, and much shorter than the tube of the corolla. The blade of the leaf terminates rather abruptly, and the footstalk is hardly winged. In those that have the Primrose form there are frequently a number of single-flowered stalks issuing from among the leaves, as well as those flowers which are borne on a scapigerous umbel; whereas in the true Cowslip or Oxlip form the flowers are always in an erect umbel

on a tall scape, which is sometimes very stout, and which arises from a rosette of leaves. The laced Polyanthus of the florists is no doubt also derived from the Cowslip or the Oxlip, and not from the Primrose.

In discussing the subject of Primroses and Polyanthus in the pages of the Journal one correspondent questioned the accuracy of the statement of another that some Polyanthus sometimes become Primroses. I can verify that fact, and that some Primroses change to the Polyanthus form of flowering. These, however, all



Fig. 8.—COWSLIP POLYANTHUS. (See page 30.)

belong to the section which I have already referred to of Primrose Polyanthus. There is a very good instance of this to be met with in a Primrose which was raised a few years ago called "*aureulæ-flora*." This is a Primrose early in the season, but after a time it throws up a scape with several flowers in a small umbel, so that it is not a true Primrose. A double variety which I have grown for many years under the name of "*lilacina plena*," but which has appeared lately as a new variety under the name of "*marginata plena*," frequently assumes the Polyanthus form later in the

season, though it has all the appearance of a double violet Primrose on its first blooming. I have also many more that disport themselves after this fashion, but I do not think an instance can be found of the florists' stage Polyanthus ever assuming the habit of a Primrose or any other Polyanthus which has for its ancestor a Cowslip or an Oxlip.—PHILANTHOS.

HARDY FLOWERS.—In answer to the letters that appear in the Journal to-day with reference to my article on hardy flowers

on page 468 of your last volume, I wish to say that the article was written some considerable time before it was published, and that now the appearance of my beds is as gay as then it was gloomy. My Delphiniums, Potentillas, English Iris, Summer Phlox, White Rockets, Sweet Williams, Antirrhinums, and Roses leave but little to be desired.—WYLD SAVAGE.

FARNINGHAM HORTICULTURAL SOCIETY.

ON Wednesday the 30th ult. this Society held its annual Exhibition of plants and Roses, the weather proving much more favourable than on the same occasion last year. One of the chief objects of this Society is to encourage the culture of Roses, and in consequence a large proportion of the classes was devoted to these flowers, the result being a very fair display. Provision was also made for the exhibition of stove and greenhouse plants, but the entries were not very numerous, and with the exception of a few groups, and the collections contributed by several nurserymen, miscellaneous plants were not very strongly represented. Fruit and vegetables were well shown by a few exhibitors, the produce staged being fairly creditable examples of culture.

The chief class for Roses was the open one for forty-eight varieties, and in that the prizetakers were Mr. B. R. Cant, Colchester, and Messrs. Bunyard & Sons, Maidstone, who were placed first and second respectively with collections of neat blooms, the premier flowers chiefly excelling the others in freshness and substance. Mr. Cant also staged the best twelve Teas and Noisettes, all blooms of good form; Maréchal Niel and Devoniensis were especially notable. Messrs. Bunyard & Sons again followed very closely, *Perle des Jardins* being one of their finest blooms. In the amateurs' class for twenty-four varieties the winner of the first prize and the silver medal of the National Rose Society was S. Hall, Esq., South Darent, who exhibited a very neat collection of blooms, Dr. Andry, Sultan of Zanzibar, and Star of Waltham being particularly fine. Dr. Ashurst followed with blooms of average merit. Neat collections of twelve and six varieties were staged by Dr. Tucker of Farningham and F. Burnside, Esq., Farningham, who respectively secured the premier prizes in each class, being followed by Mr. A. Mason, Farningham, and Dr. Ashurst. In another class for twelve, confined to subscribers living within a radius of six miles of Farningham, the Rev. J. M. Fuller, Bexley, Kent, gained the chief award with fresh blooms of good colour; W. Tristram, Esq., St. Margaret's, and J. Honychurch, Esq., Springwood, Dartford (gardener, Mr. A. Purvis), following with good examples of well-selected varieties. Several other classes were devoted to Roses, the principal exhibitors being F. Warde, Esq., West Farleigh, Maidstone; Mr. J. Wakeley, and Mr. W. H. Wakeley, Rainham, Kent; Wm. Spottiswoode, Esq., Sevenoaks (gardener, Mr. J. Bolton); and F. F. Burnaby Atkins, Esq., Halstead Place.

Stove and greenhouse plants were exhibited by Mr. Bolton and H. B. Mildmay, Esq., Shoreham (gardener, Mr. J. Bart), who received the two prizes of healthy specimens. Fruit was also well shown by Mr. Bart and Mr. Bolton, who carried off most of the prizes. Among the miscellaneous collection a handsome group of *Coleuses* from Mr. H. Cannell, Swanley, was greatly admired; Mr. Cattell, Westerham, also contributing a group of plants.

The Exhibition was held in an open piece of ground near the Lion Hotel, and was well attended during the afternoon, the arrangements giving great satisfaction.

DOUBLE PYRETHRUMS.

I IN common with many other readers of "our Journal" was much interested in the article on the culture of double Pyrethrums by Mr. Wright. It may be seen by the remarks of Mr. Wolley Dod a fortnight ago, that the plants are uncertain and whimsical; and I have known several failures even with careful cultivators, of which I believe slugs are not the entire cause. I have seen roots get knotted or cankered. Do these plants object to lime, or lime and soot? I have fancied so. Will Mr. Wright say when the cuttings should be made, and whether only flower shoots can be used for cuttings?—S. S.

I AM greatly obliged to Mr. Wolley Dod for his important note on page 489 of the last volume. The attacks of slugs under ground I had never observed, for the reason, I presume, that previous to surface-dressing the beds in autumn I removed a little soil from the plants and filled in the space with small cinders. This was not done to preserve them from slugs, but to enable the winter moisture—heavy rains and snow—to pass away freely and prevent any decay of the crowns. I omitted to state this practice, which also, no doubt preserved the plants from slugs. I have adopted the same practice with Delphiniums and Hollyhocks with the best results. Without some such aid all the plants named canker in some soils. It is quite true that all soils suitable for Pyrethrums will not grow Carnations, but I shall be surprised to learn that soils which will grow Carnations well will not also grow Pyrethrums.

Cuttings are struck precisely the same as Phloxes. The growths

when 3 or 4 inches long are thinned-out and made into cuttings, which are inserted in sand in gentle heat. These growths can generally be well spared, and those remaining produce finer flowers. Each cutting if it is not stopped produces one flower the same season, and also forms growth at the base for another year's blooms; it is advisable, however, to sacrifice a small flower and make a strong plant. The cuttings must not remain in heat a day after they commence rooting.—J. WRIGHT.

CANTERBURY ROSE SHOW.

OF all the exhibitions of the Rose which it is my happiness to attend in the course of the brief but busy season in which they take place there is none that has a deeper interest for me than that which is held in this old cathedral city, associated as it is with my boyish days, where, ere the cares and anxieties of the battle of life came upon me, so many happy days have been spent with dear relatives—now, alas! gone. I cannot but feel an interest in it, although it did seem strange that as I walked through the streets there were none of those whom I formerly knew to welcome me; for as showing the manner in which families get scattered in these days on the face of the earth, for the first time for upwards of three hundred years there is not one of my name left in the old city, which has been its English home for that period. Well, let that pass; we come to the present. I have watched the growth of this new Society. I was enabled briefly to chronicle its first Exhibition; and now what can I say but that all interested in the Society must feel gratified at the rapidity with which it has risen in public favour, and the success which has attended this, its second Show. A Society which can attract to it, not only the growers in its own neighbourhood, but such men as Cant of Colchester, Mitchell of Piltown, and Prince of Oxford, must occupy no second-rate position, and in truth one rarely sees a better-filled room or more creditable flowers than were shown on this occasion.

The nurserymen's class was well represented, and the boxes of Tea Roses especially were so excellent and so nearly equal as to give considerable trouble to the Judges. The first prize was ultimately awarded to Mr. Prince of Oxford, who had a grand box, containing amongst others splendid blooms of Anna Ollivier, Madame Bravy, and Souvenir d'Elise; but I think the amateurs may well be proud of the position they occupied, the quality of their flowers being very excellent. Mr. W. Mount took the first prize for eighteen with a very even and well-flowered collection, notably amongst them a grand and large bloom of Mons. E. Y. Teas, Maréchal Niel, Penelope Mayo (very good), Marie Rady, Madame Victor Verdier, and Alfred Colomb. The Rev. H. B. Biron's box of twelve was one of the most perfect stands I have ever seen, and when I call to mind the few Roses that he has to cut from and the losses he has had I cannot but say it does him infinite credit. They were Marie Rady (grand), Marie Baumann (a splendid bloom), La France, Reynolds Hole, Marquise de Castellane, Royal Standard as good as I have ever seen it, Mlle. Eugénie Verdier, Le Havre (a truly grand bloom, obtaining the bronze medal of the National Rose Society for the best Rose in the Show), Naomi, a flower which no one seemed to know. It is a large dark flower with shell-like petals, something in the way of Reynolds Hole, but more regular in form; Duke of Edinburgh, Etienne Levet, and Annie Wood. This box not only obtained the first prize for the best box of twelve, but also the silver medal of the National Rose Society for the best box of any number in the Show, while Mr. Biron obtained the silver cup given by the city Members for the exhibitor who had obtained the highest number of marks. Mr. George Mount of Harbledon obtained the first prize for six varieties, for Alfred Colomb, Jules Margottin, Lord Raglan, Duke of Edinburgh, Souvenir de la Malmaison, and Charles Lefebvre, all very good blooms. Mr. J. Wakeley of Rainham obtained the first prize in Teas and Noisettes for excellent blooms of Madame Margottin, Comtesse de Nadaillac, *Perle de Lyon*, Souvenir d'un Ami, La Boule d'Or, Jean Ducher, Céline Forestier, Céline Berthold, Maréchal Niel, *Perle des Jardins*, and Madame Falcot. Mr. William Mount was first in six Teas with very fine blooms of Hippolyte Jamain, Souvenir d'Elise, Bouquet d'Or, Comtesse de Nadaillac (very lovely), Rêve d'Or, and Souvenir d'un Ami. Mr. Wakeley was first for six trebles, showing good blooms of Madame Lacharme, Duke of Edinburgh, Nardy Frères, Duke of Wellington, Marquise de Castellane, and Duke of Connaught. For the best six of one variety Mr. Biron was first with La France in capital condition. There was a very sharp competition for the prizes offered by Mr. B. R. Cant of Colchester, the first being taken by Mr. Wakeley.

The table decorations were not quite up to the mark, having the too common fault of being too full. There is doubtless a great temptation when good flowers are to be had to crowd them in, but it can never be too strongly impressed on all those who have to arrange table decorations or flowers in any way, that lightness and elegance are more to be desired than quantity of material or gorgeousness of colouring.

The room which, as I have before said, is admirably adapted for the purpose, being lofty and lighted from the roof, was quite filled with Roses. The arrangements were excellent, and I am sure all lovers of the Rose who rejoice to see a taste for it spreading widely are much indebted to the able Secretaries, the Rev. H. B. Biron and Mr. W. Mount, for the zeal and courtesy with which they brought

to a successful issue this second Exhibition of the Canterbury and East Kent Rose Society.—D., Deal.

A NEW SOCKET VALVE.

IN our report of the great summer Show of the Royal Horticultural Society we briefly referred to a new throttle valve invented by the Meadow Foundry Company (Limited) of Mansfield, and for which the manufacturers were awarded a silver medal. This valve is different from all others that we have seen, inasmuch as the socket in which it is fixed is moveable (fig. 9), and only needs to be inserted in the pipe and screwed down (fig. 10), and it is firm, safe, and complete. This new valve takes up no more room

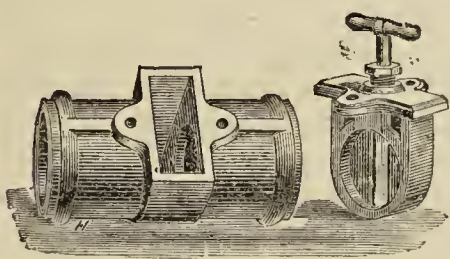


Fig. 9.

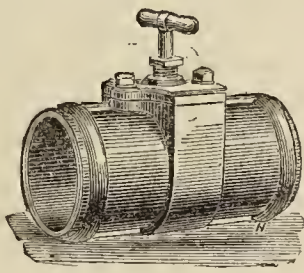


Fig. 10.

than an ordinary valve, and can when necessary be taken to pieces, cleared of the cause of any stoppage, and replaced in a few minutes by the stoker or gardener; and by keeping a spare valve plate and seating in stock a damaged plate through accident can be replaced as simply. The high mark of approval which the valve received at the Show referred to is sufficient recommendation of its merits, and after examining the valve carefully we consider it worthy of the recognition it received by the Judges.

TUNBRIDGE WELLS HORTICULTURAL SOCIETY.

JULY 2ND.

ALTHOUGH the twenty-fourth annual Exhibition was not the largest ever held in the town, the surroundings of which are so beautiful, yet it was of undeniable excellence. Specimen plants were very good, fine-foliaged plants fair, Ferns excellent, while Fuchsias, Achimenes, and Begonias were better than we have seen for a very long time. Groups of plants for effect had a tent to themselves, and were attractive; and another large marquee was devoted to fruit, which was of great merit. Roses formed an attractive display, table decorations and collections of wild flowers splendid, bouquets tasteful, and vegetables very good.

PLANTS.—We are only able to notice the exhibits in the principal classes and enumerate the chief prizetakers. Mr. Balchin, Silverwood Conservatory, Western Road, Brighton, staged admirably in several classes, and secured first prizes in the open class for eight specimen plants in bloom, for eight fine-foliaged plants, for six Ericas, for eight Ferns, for bouquets, besides some minor prizes. Mr. Bolton, gardener to W. Spottiswoode, Esq., Coombe Bank, Sevenoaks; Mr. Pope, gardener to J. J. Barran, Esq., Holmwood, Tunbridge Wells; Mr. Johnstone, gardener to the Marchioness of Camden, Bayham Abbey; and Mr. Peed, Norwood, were also highly successful, and staged plants of great merit in the leading classes. A few of Mr. Balchin's noteworthy plants were *Statice imbricata*, 7 feet over, and Ferns; Mr. Barran's *Crotons* and *Kalosanthes*; Mr. Bolton's *Clerodendron fallax*, with a dozen fine heads, and *Maranta vittata*, fresh and fine; and Mr. Peed's *Ixora Prince of Orange*.

In the open class for six Fuchsias Mr. Turner, gardener to F. R. Le Lachaer, Esq., The Wilderness, Pembury Road, Tunbridge Wells; Mr. Earley, gardener to G. A. Brittain, Esq., Ferndale House; and Mr. Shrivess, gardener to the Corporation of Brighton, secured the prizes in the order named with healthy, well furnished, admirably bloomed pyramids, 5 to 6 feet high, and 3 feet in diameter at the base. The "Try-me-O" of Mr. Turner would have gladdened the heart of a Cannell. In Achimenes Mr. Scammell, gardener to Charles Reilly, Esq., Nevill Park; Mr. Bashford, gardener to F. Douglas, Esq., Chilton House; and Mr. Wilkins, gardener to Mrs. Williams, Shirley Hall, Langton, were the respective winners with fresh healthy examples 2 feet across, covered with fine flowers. The last-named exhibitor was first in the Zonal Pelargonium classes with good plants. Mr. Shoebridge, gardener to W. Edwards, Esq., Fairbank, Sandrock Road; and Mr. Allen, gardener to G. Hambro Field, Esq., Ashurst Road, Bolton, securing the prizes in the Show and Fancy classes. Remarkably fine pans of *Selaginellas* were staged by Messrs. Scammell, Bashford, and Mayer (gardener to Mrs. Foster, Boyne House), and Mr. Earley.

For groups of plants the prizes went to Messrs. Bolton, Bashford, Pope, Turner, Scammell, and Earley. Though all possessed merit

they were rather too smooth and level. Mr. Pope's (third) was the most tasteful, but required more flowers. One (very properly passed) was a mere floral toy, like a collection that somewhat strangely was awarded the chief prize at the great summer Show at Kensington. Those groups were in squares, but would have had a more pleasing effect in half-circles.

FRUIT.—This was of great excellence. The collections were exceedingly smart—perhaps too smart—as arranged on square trays covered with moss and lichens margined with foliage and sprinkled with flowers. A dessert cannot be placed on the table in this form, and the ornamental adjuncts are calculated to detract attention from the real merit of the fruit, yet the prizes were rightly awarded to Mr. Hopgood, gardener to Sir Julian Goldsmid, Bart., Summerhill, the noteworthy dish being a fine bunch of the Duke of Buccleuch Grape; Mr. Henderson, gardener to F. Deacon, Esq., Mabledon Park, a close second; Mr. Fennell, gardener to E. Cazalet, Esq., Fairlawn Park; and Mr. Bashford, all of whom staged excellent produce. Splendid Pinc Apples were staged by Mr. Scammell; Mr. Hopkins, gardener to R. Thornton, Esq.; Mr. Harris, gardener to O. A. Smith, Esq., Hammerwood, East Grinstead, also had good fruit. Mr. Johnstone was placed first for three varieties of Grapes, Duke of Buccleuch being excellent; Mr. Bolton and Mr. Allan having the remaining prizes with good and well-finished bunches. For Black Hamburgs the prizes went to Mr. Reeks, gardener to R. Watson Smith, Esq., Woodhurst Castle, Mr. Henderson and Mr. Hopwood, who all staged superior fruit in a very fine class. In the class for white Grapes Mr. Blundell, gardener to F. Holtman, Esq., East Hatherley, was first with good Muscats, but not perfectly ripe; Mr. Johnstone second with Buckland Sweetwater, very fine but overripe; Mr. Bolton third with good Foster's Seedling, and Mr. Barnes fourth with excellent examples of Golden Champion—a most difficult class to judge. Peaches were very fine, Mr. Fennell winning with a splendid dish of Noblesse; he was followed closely by Mr. Johnstone and Mr. Ridout, gardener to T. B. Haywood, Esq., Woodhatch Lodge, Reigate, who had the remaining prizes. Nectarines were fine. Mr. Allan was first with such a grand dish of Elruge as is seldom seen; Mr. Goldsmith, gardener to Mrs. Lambert, Sandhills, Bletchingley, and Mr. Bashford, following with excellent fruit. Strawberries were splendid. Mr. Goldsmith was first with a remarkable dish of James Veitch, the thirty fruits weighing 3 lbs. 6 ozs.; he also staged a plant of the same variety in a pot with forty to fifty fruit, several of which exceeded an ounce in weight. The second prize in the class was won by Mr. Fennell, and third by Mr. Holliday, gardener to J. Norris, Esq., Castle Hill, Bletchingley, both with superior dishes of Sir J. Paxton.

ROSES AND CUT FLOWERS.—Mr. Piper, Uckfield, was first in the classes for forty-eight single Roses and twenty-four triplets, Messrs. Mitchell & Sons being second in both classes with good stands. For twelve and twenty-four blooms J. B. Haywood, Esq. (Mr. Ridout, gardener), had the chief prizes with grand blooms, the latter stand not being equalled at the National Rose Show. Mr. F. Warde, West Farleigh, and Mr. Goldsmith had the remaining prizes in these classes with good stands. Messrs. Wood & Son, Maresfield, staged an excellent collection of Roses not for competition. In the class for eighteen varieties of cut flowers Messrs. Johnstone, Bolton, and Hopkins secured the prizes with splendid stands.

TABLE DECORATIONS AND WILD FLOWERS.—The stands furnished with exotic flowers were tasteful, but those containing wild flowers and Grasses were of extraordinary merit. We never saw them equalled, and the winners—Miss Parkhurst, Quarry Hill, Miss Staples, The Gardens, Chipstead Place, Sevenoaks, and Miss Satchell—have our congratulations. The association of Poppies, Ox-eye Daisies, Cornflowers, wild pink Roses, and Water Lilies with Grasses was most elegant. We have a high meed of praise, too, for the exhibitors of collections of wild flowers, of which we cannot speak too approvingly. The first-prize collection of Miss Isabella Cox of Redleaf was of exceptional merit; the flowers, nearly one hundred, were arranged tier above tier, with the botanical and popular names of each flower neatly printed on small cards, the effect being very complete. Miss Ware's (of Frant) collection contained perhaps still more varieties; and most meritorious were the stands from Mr. Dixon, gardener to Captain Taylor, Glenleigh, Hastings, and Mr. Allan, Ashurst Park, who had the remaining prizes.

The Show was held in the extensive and attractive grounds of Bishop's Down Grove, Spa, and was largely attended by a fashionable company. To Mr. Loof, who has been the Society's efficient Secretary since its formation, we are indebted for much courtesy during our visit to this excellent Show.

THE PRIMROSE AND POLYANTHUS.—I have been greatly interested in the discussion on the origin of the Primrose, Cowslip, and Polyanthus, as I have been collecting some of the best seedling Polyanthus with the idea of improving them by cross-breeding and selection. Two years ago I met with a blue, or rather a lilac-blue, Polyanthus, and have now four seedlings from it. This year I divided the plant, and now find one of the plants is producing seed (fertilised) on single stems like the Primrose, the other is producing seed on a stem the same as the Polyanthus.

I find no difficulty in getting seed from the thrum-eyed fertilised with the pin-eyed or *vice versa*.—X.

BROCKHAM ROSE SHOW.

IN one of the loveliest spots in that very lovely vale, watered by the Mole, stretching from Redhill to Guildford, and within about two miles of the town of Dorking, the members of this Society or Club held their meeting on one of those bright and sunshiny days which form so striking a contrast to those we experienced last year. The Society has a peculiar constitution: its members are limited to a certain number, its exhibitions are held in private grounds, to which, however, the public is admitted, and thus the outside world enjoys not merely the sight of the Roses, but a stroll through beautiful and well-kept grounds. The Rookery, the residence of Mr. Fullar, was this year offered to the Society, and a more fitting place could hardly be imagined. The house is situated at the foot of a high hill covered with fine Beech trees, and just below it there is a pretty lake surrounded on all sides with fine foliage and well-kept lawns. Here, then, at the border of the lake was pitched the tent of the Society, and here its exhibits were displayed, and on the lovely bright day nothing could be more delightful. Different, doubtless, it would have been had the weather been wet or stormy, but both exhibitors and visitors thankfully received the welcome weather.

The exhibits are confined to amateur members of the Club, and exceedingly well did they maintain their position, for some excellent stands were displayed by the Rev. Alan Cheales, Lady Lawrence; Messrs. Stone, Wollaston, Horne, and others. The best box of twenty-four was that exhibited by the Rev. Alan Cheales, who had fine blooms of Madame Thérèse Levet, Charles Lefebvre, La France, Marquise de Castellane, Marie Baumann, Magna Charta, Baronne de Rothschild, Comtesse d'Oxford, Sultan of Zanzibar, Annie Laxton, Duke of Edinburgh, Dupuy Jamain, Cheshunt Hybrid, Marie Rady, Fisher Holmes, Boule d'Or, Pierre Notting, &c. This stand, although perhaps not quite equal in quality to that Mr. Cheales exhibited at Reigate, contained some very fine blooms. Mr. Wollaston was second with a nearly equal stand containing the finest Rose in the Show—a magnificent bloom of A. K. Williams. Not only was it this, but it was the finest Rose I have seen this year; and I write this after having seen the National Rose Show at the Crystal Palace, where the same variety as shown in Mr. Baker's stand took the medal offered by Mons. Lenaerts of Antwerp. It is unquestionably a grand flower, imbricated like a Camellia, and of a brilliant scarlet, recalling *Senateur Vaise* at its best, but even brighter than that variety. The twelve exhibited by G. Stone, Esq., were very fine, and comprised Madame Lacharme, Général Jacqueminot, Baronne de Rothschild, Marie Baumann, John Hopper, Thomas Mills, very bright; Mons. Noman, Cheshunt Hybrid, Fisher Holmes, Madame Clemence Joigneaux, Pierre Notting, and Miss Hassard.

A very pretty class here is that for four triplets. Mr. Stone obtained first prize with Baronne de Rothschild, Marie Baumann, Général Jacqueminot, and Pierre Notting. There were several boxes of Teas shown. Some very pretty stands of flowers were set up, and the Treasurer, Captain Lang, offered prizes for wreaths for ladies' shoulders as they are worn now. The buttonhole bouquets were very pretty. The first prize was won by C. E. Cuthill, Esq. All the arrangements were admirably carried out by the Secretary, the Rev. Alan Cheales, and the Exhibition altogether was both interesting and good.—D., Deal.

EXHIBITING VARIEGATED PELARGONIUMS.—An exhibitor shows two silver variegated, two gold variegated, and two bicolors, in a class for "six Pelargoniums, variegated varieties." The judges disqualify the exhibit on the ground that the bicolors do not come under the heading of variegated Pelargoniums. Is the decision of the judges a correct one?—DUNCAN & SON, *Christchurch, New Zealand*.

[There are gold and silver tricolor and gold and silver bicolor Pelargoniums, and all are equally eligible to compete in a class of "variegated varieties."—EDS.]



FRUIT HOUSES.

Peaches and Nectarines.—When the fruit has been all gathered in the earliest house the trees must not be neglected, especially as regards the supply of water to the inside borders, and if the trees are enfeebled afford weak liquid manure, which will assist them greatly. The bearing wood of the season must be removed to allow of free access to light and air, and the beneficial action of water from syringe or

engine, which must be effectively supplied daily to cleanse the foliage and keep it free from red spider. If the roof lights are moveable remove them; if not, ventilate to the fullest extent. Houses in which the fruit is ripening should be freely ventilated, fire heat not being necessary except during unusually cold, wet, sunless weather. If the fruit ripens too rapidly it may be retarded by shading with some light material during the hottest part of the day, but do not resort to this unless absolutely necessary to secure fruit for a special purpose or to continue the succession. In later succession houses, where the fruit is about taking the second swelling after stoning, copious supplies of water will be necessary, and liquid manure if the trees are weakly or carrying a heavy crop; water, clear and soft, being applied forcibly by a syringe or engine to keep red spider in check. Ventilate in favourable weather, and reduce the ventilation early in the afternoon if it be desired to accelerate the ripening of the fruit, otherwise admit air freely at all times in favourable weather. Keep the shoots tied-in as they advance, thinning out superfluous growth.

FLOWER GARDEN.

Ply the hoe and rake frequently in favourable weather, for under no circumstances must weeds be allowed to increase. Trim the edges of walks or beds with the edging shears so as to render the garden neat and clean, rolling gravel walks after rain so as to keep the surface smooth and firm. Continue to peg all kinds of trailing plants as they advance in growth, and encourage them in every way to fill the beds as quickly as possible. Beds that have been mulched over as advised will now require but little attention as regards weeding and watering, as much of this labour will be saved; but those not mulched should have the surface stirred occasionally to destroy weeds and lessen evaporation. Subtropical plants can scarcely receive too much water, and if the weather be warm mulch heavily with well decomposed manure, and stake and tie the plants securely as they advance in growth. Hollyhocks, Dahlias, and other plants of strong growth should be treated similarly. Alternantheras, Pyrethrums, &c., should, if the weather be dry, receive abundant supplies of water, or they will soon cease growth and fade in colour. The plants should be confined to the spaces or lines allotted to them, so that the design may be readily traced, and the clearer the design the more effective are all carpet beds. Carnations should be neatly staked before they become too forward, advancing the propagation of these and Pinks by layers and pipings, choosing an old spent hotbed on which to place the handlights to contain the latter, inserting them in sharp sandy loam, keeping well shaded from the sun, and gently sprinkling overhead occasionally so as to keep the atmosphere moist.

Propagating Roses.—Cuttings of Roses strike freely at this season, and in light soils are preferable to those on the Briar. The cuttings should be prepared from well-ripened wood, inserting them in sandy loam under handlights over a spent hotbed, shading from bright sun, keeping close, and sprinkled overhead daily until the cuttings begin to grow, when air should be admitted. Briar and other stocks will be sufficiently forward for budding, dull weather being most favourable for the operation. Choose wood that has just borne flowers, the buds being more mature than such as are obtained from sappy barren shoots, successful budding depending quite as much on selecting sound mature buds and in extracting the wood as on inserting and tying. In taking the wood from the bud be careful not to injure the bark by too sharply bending it back or bruising it in any way, or the bud is almost certain to fail.

Roses of the Hybrid Perpetual section as they go out of bloom should be shortened back a little, and every means taken, by freeing them of insects, syringings overhead, and copious supplies of water or liquid manure to the roots, to insure a free growth and consequent free autumn flowering. Such varieties as *Maréchal Niel* trained to walls should have the old wood cut out and young wood laid in, not too thickly, to replace it for next season's flowering. Look over climbers frequently, tying or nailing as required, after having regulated the growth by thinning out. If in dry borders supply water abundantly in dry weather, and keep the foliage free from insects by syringing with the garden engine or the prompt applying of an insecticide.

PLANT HOUSES.

Stove.—Many stove plants from their quick growth soon become

too large for general purposes or disfigured from employment for decoration, that it is better to propagate young plants and discard the others. The shoots of most hardwooded plants will now be in a half-ripened condition and will root freely. Such should be inserted singly in small pots, and they will produce roots quickly in a brisk moist heat, but quite as safely in a close case in the house where the plants are growing from which the cuttings are taken. Plants that strike freely in this way are Gardenias, Tabernæmontanas, Ixoras, Medinillas, Clerodendrons, Rondeletia speciosa, Bougainvilleas, Thunbergias, Hexacentris, Dipladenias, Stephanotis, Combretum, Æschynanthus, &c.

Allamandas, Dipladenias, Bougainvilleas, &c., when well managed flower continuously through the summer and autumn; but as they are of strong growth and exhaust the soil before the end of the season a surface-dressing of thoroughly decomposed manure and liberal applications of liquid manure, which will enable the plants to continue flowering right into autumn. Any choice varieties of Gloxinias may now be propagated by leaf-cuttings, which root better at this season than earlier when the leaves are soft. They should be inserted in sandy soil around the sides of the pots, keeping them near the glass and shaded from bright sun, being careful not to keep them too moist. Pot off the cuttings of Poinsettias and Euphorbia jacquiniæ-flora as soon as rooted, for the plants feel the check more keenly if this be deferred until the growth is more advanced.

Ferns.—Any plants that were not potted in spring should now receive attention, providing good drainage, and soil that will admit of the water passing freely through the soil, charcoal or sandstone being a suitable admixture to the peat. Plants with creeping rhizomes, as Davallias, Gleichenias, &c., should never be allowed to suffer from having their creeping stems injured, as they will if they are allowed to extend over the rims of the pots. Ferns must never be allowed to suffer through insufficient supplies of water, especially Gleichenias, as if ever the young fronds flag for want of moisture they become stunted, never attaining their proper size. Tree Ferns, particularly Cyatheas, when allowed to become dry at the roots are disfigured both in form and colour. Insects, especially scale, must not be allowed to increase, or the trouble of cleansing is not only great but much injury is done to the fronds in destroying it. Thrips should be kept under by fumigation.

NOTES ON VILLA AND SUBURBAN GARDENING.

KITCHEN GARDEN.

Coleworts.—Few amateurs have realised the value of small Cabbage or Coleworts during the early part of the winter. It is not yet too late to sow a good breadth of some of the small early varieties, such as Cocoanut and Rosette Colewort. The plants will be ready to follow autumn-sown Onions, Potatoes, Turnips, Peas, Beans, and other early-maturing crops. Those that do not produce hearts will be useful as greens, and in this state large quantities are annually bunched and sent to the markets. If this practice of growing Coleworts is adopted the stems of the autumn-sown Cabbage may be cleared off, as they greatly impoverish the soil, and can be followed with either the earliest or main crop Celery.

Celery.—Advantage should be taken of dull showery weather to plant out the main crop of Celery. If the ground is unoccupied do not wait till the plants are large, as small sturdy plants take more readily to the soil, becoming well established before we usually experience very hot and dry weather. Single lines of plants in the trenches are the easiest to manage. The trenches may be 18 inches wide and about 4 feet apart. Take out the first spit of soil without the shovellings and distribute evenly on each side of the trench, then thoroughly mix a liberal quantity of well-decomposed manure with the bottom spit. If either the bottom spit of soil is stiff and very poor, or manure be scarce, throw out the shovellings, break up the bottom spit, over this thinly distribute the manure, and next a layer of soil to work in with the plants. Do not cramp the roots should there be no ball of earth attached, but lay them out flatly and cover firmly with soil. If the plants have been pricked out as previously advised place the flat balls directly on the manure and cover with soil; unless extra large sticks are required a distance of 9 inches apart will suffice.

Remove all suckers from the plants previous to planting, and the latter operation, unless dull weather prevail, is best done towards the evening. In either case well water the plants, and sprinkle them overhead frequently till established.

Other Necessary Work.—During showery weather proceed with all possible dispatch with the final transplanting of winter greens, Brussels Sprouts, Savoy, and Broccoli. Plant in drills as much as possible, the better to admit of water being freely supplied should they at any time require it. A loose soil does not suit any of them; all light soils should therefore be well trodden previous to planting. A firm rich soil is requisite for the present sowings of Lettuce; make small fortnightly sowings, and avoid transplanting as much as possible. Thin out Runner Beans where crowded. Those to be grown without stakes should be topped at the second joint, and any side shoots that follow at one joint each. Abundance of strong spikes of bloom will follow this pinching-back, and the earliest Beans are usually taken from those so treated.

GREENHOUSES AND FRAMES.

Auriculas.—Now is a good time to repot these; very early potting induces autumn blooming, which is undesirable. Shake the soil clear of the roots, shortening back the main root, and repot firmly, employing soil consisting of three parts turfy loam to one of leaf soil, with a good addition of silver sand and a few small pieces of charcoal. Single crowns give the best trusses; and pots of suitable size for the strongest plants are those 5 inches in diameter, and others in proportion, which should be clean and carefully drained, covering the crocks with very fibrous loam well beaten, and failing this with moss. Place them in a cold frame, either facing the north, or better still, on the north side of a wall. Water them in the course of four or five days, and keep them close till they have commenced to root afresh; after which more air should be given. Attend carefully to the watering, and pick off decaying leaves. Auriculas may be propagated by division when there are two or more main growths, or the strongest offsets may be taken off and either pricked out into well drained boxes or in small pots, in each instance sufficiently deep to admit of being covered with squares of glass. Use light sandy soil, water sparingly, and to prevent the plants damping off wipe the glass and give air for a short time every morning. A high temperature and dry atmosphere are very injurious to Auriculas in any stage of growth.

Azaleas.—Repotting Azaleas when performed by either careless or inexperienced persons often ends in the gradual death of the plants. The proper time to repot is when they are making fresh growth, as then the root-action is the most brisk. Large shifts should be avoided, and as a rule a pot about 2 inches larger in diameter is sufficient, the soil to consist of three parts good peat to one of good fibrous loam with a liberal addition of silver sand and a sprinkling of charcoal. If good turfy loam is unavailable use all peat. Carefully drain the quite clean pots, placing a thin layer of the roughest soil over the crocks, next a little finer soil; and when the thoroughly moist ball is in position gradually work the soil round it, ramming it down with a pottling stick at the same time, and finishing off evenly and firmly allowing about the depth of the rim of the pot to admit of watering properly. Remove the plants to the warmest part of the house shade from bright sunshine, and syringe frequently. In about three days give sufficient water to thoroughly soak the soil, and at no time after should it be allowed to become dry. Badly rooted and unhealthy plants should have all the sour soil carefully pricked off and the plants repotted into as small pots as possible. Cut or pinch back any long strong growths, as they are both injurious and disfiguring.

Mignonette.—Plants intended to be grown into specimens for blooming during the winter should not be allowed to become rootbound, but should receive an occasional small shift till they are in 9-inch or 10-inch pots, either being suitable sizes in which to flower them. Suitable soil consists of three parts turfy loam to one of well-decomposed manure, with a good sprinkling of mortar rubbish. When potting the soil cannot well be made too firm, and at no time should the plants be allowed to become dry at the roots. Place a light stake in the centre of the triplets intended for pyramids, taking up the leading shoots only, pinching out the bloom spikes as they form, and

also lightly pinch back the side shoots. Stake the single plants intended for standards; train up the leading shoot which forms after the bloom spike is pinched out only, and rub out all side shoots. They may be grown to a great height, but a height of from 18 inches to 2 feet will suit most cases. A sunny and rather sheltered spot is now the most suitable for them.

Rather closely pinch back young growing plants of Libonias, Salvias, Solanums, Veronias, Eupatoriums, and Coronilla glauca, and when they break afresh either repot or plant them in a warm border, the soil of which is rather light. All to be lifted and potted before the arrival of frosty weather.



* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Pine Apple Culture (R. Sutcliffe).—The "Pine Apple Manual," published at our office, price 2s. 6d.

Cucumber Culture (S. C. H.).—"Kitchen Garden Manual," published at our office, price 4½d., post free.

Exhibiting Roses (A. Paine).—Two Tea Roses of different varieties should not disqualify unless the wording of the schedule forbids it specially.

Saw Machine (J. G.).—The makers must advertise it, or you must advertise your want. We cannot inform you.

Cactus grandiflorus (W. B.).—The fruit is not eaten that we are aware of, but the fruit of *C. speciosissimus* when well ripened, is good, and that of *C. triangularis* (the Strawberry Pear) very delicious when ripened in a climate suitable for developing its qualities.

Odontoglossum vexillarium (C. C.).—If the flowers are fertilised and seed pods form and swell, small plants would no doubt be injured if the seed was left to ripen, as the strength of the plants would be devoted to supporting the seed and might be exhausted.

Honesty (C. M. F.).—If the weather is fine the seed vessels become quite silvery without any assistance; if wet weather prevails the plants may be taken up when the seed is on the eve of maturity, or the stems be cut off and placed in a dry place under glass, and outdoors when the sun shines, to mature the seed and bleach the pods.

Green Fly on Celery (Reader).—Syringe the plants with a solution of soft soap and tobacco water, Gishurst compound, or any other approved insecticide of the strength that has so often been recommended; or after rendering the foliage moist dust the plants with tobacco powder, and the aphides will soon disappear.

Heating Pit (K. W.).—If you have no side lights one 4-inch pipe taken round the pit would be sufficient for maintaining a suitable temperature for the plants you name. Two 3-inch pipes and a good boiler would enable you to work the pit at an intermediate or cool stove temperature in winter if required without hard firing.

Abnormal Fuchsias (A. O. L.).—It is not at all unusual for small coloured incipient petals to form on the stamens, and we have seen many flowers much more marked in this respect than those you have sent to us. These freaks of Nature cannot be accounted for, but such changes are the most common in vigorously grown plants.

Calycanthus not Fragrant (A. B.).—There are several species of Calycanthus which are not remarkable for their fragrance, and possibly yours may be one of them. What is its specific name? They flower in early summer. Perhaps, however, you mean Chimonanthus fragrans, which is often called Calycanthus; but this flowers during the winter, from December onwards, and the flowers, though not particularly attractive, are highly fragrant.

Beetles on Conifer (J. B.).—Your specimen is attacked by the Pine beetle, Hylurgus piniperda, and will probably receive great injury unless you can adopt some means of eradicating it. In the case of a large specimen this is most difficult, and we can only suggest a good washing through a powerful engine with a solution of nicotine soap, of a strength of 3 ozs. to the gallon of water. If anyone can suggest a better remedy we should be glad to publish it.

Ants in Orchid Pot (Inquirer).—If the pot is thoroughly well drained, as it should be, we should place it in a tank of tepid water for a few hours. This we think would not injure the plant, while it might either drown the ants or induce them to take their departure. If very numerous they often do injury to flowers. We have seen them eat quite into the buds of Roses, and nibble off the stamens of Peach blossom in thousands.

Red Rose for Beds (Constant Reader).—It is not easy to select a red Rose having the habit and strength of the Gloire de Dijon, and that produces fine blooms freely and continuously. Cranston's climbing Charles Lefebvre partakes of the habit of the Rose you name, but we do not think it so useful for a bed as

the "Crimson Bedder." The old Général Jacqueminot is a most useful variety for massing, as it produces richly coloured flowers freely and for a long period.

Griselinia littoralis (A. J. G.).—This is a New Zealand shrub with shining coriaceous leaves and small inconspicuous flowers. It is propagated by layers in the autumn, by half-ripened shoots in sand under a handglass, and from seed. Daphne indica is propagated by inserting firm shoots in sand under a handglass in a close frame towards the end of summer, but more commonly by grafting on a hardy free-growing stock, such as D. Laureola, in March in a close frame. Brugmansias are increased by inserting cuttings of half-ripe stubby shoots in sandy soil in gentle heat under a handglass, and shaded to prevent flagging. We know of no book such as you appear to require.

Mealy Bug on Vines (One in Trouble).—We regret being unable to inform you of the best method of destroying or keeping in check mealy bug, which has made its appearance amongst some black and white Muscat Grapes which are beginning to colour. We have been fortunate in never having had to contend with the pest under such circumstances, but will readily publish practical information on the subject from those who are in a position to supply it.

Potatoes Unhealthy (G. R. B.).—The plants sent, we are sorry to inform you, are in our opinion affected with the Potato disease. Its outbreak is as much a mystery to us as it is to you, and the circumstance is the more perplexing, and we fear unfathomable, since the reputed disease-resister, the Scotch Champion, was the first to be affected, and is the most injured of all your varieties. Your soil is not of a nature, and especially as you have used no manure, for inducing the disease; but more depends on the weather than the soil; and of the amount of rain you have had, with the prevailing temperature, you say nothing. We shall be glad to hear particulars on this point, and also to know if the disease is spreading.

Seedling Delphiniums (John Cooper).—The spikes sent are very handsome and indicate that the plants are well grown; the varieties are also good but not superior, and many of them not quite equal to the best named varieties in commerce. As you grow "a choice collection of the best named varieties," you will be quite justified in naming such of the seedlings as are quite distinct from all others in your collection, and growing them for the adornment of your garden and distributing amongst your friends; but we do not consider the flowers you have sent, beautiful as we admit them to be, possess any substantial commercial value.

Camellia Leaves Spotted (F. E. D.).—The cause of the evil is defective root-action, the roots not supplying sufficient nutriment to support the foliage, hence it spots at the edges, as in the leaves you have sent, and decays. As your plant was healthy before it was placed in the tub the soil used may not be suitable, the hall of the plant may have been dry when placed in the tub, or the plant may have been watered too freely afterwards, rendering the soil sour and injuring the roots. Any of these contingencies would produce the effect of which you complain. The remedy is inducing a more active state of the roots, and shading the plant from bright sun.

Ivy for Covering a House (Vicar).—The quickest-growing is, we think, the Irish (Hedera canariensis), and that we should plant. We should procure good strong plants in pots, and we have had them with shoots 6 feet long, and otherwise well furnished. They may be planted at any time. The price varies with the size of the plants. For the size named we gave 30s. per dozen, for good well-rooted plants in pots 15s. per dozen, and for small but well-rooted 9s. to 12s. Plant at once. The plants will be well established for a good growth another season.

Vines Unsatisfactory (Subscriber).—Although you have written fully on the subject that perplexes you, as all inquirers should when seeking information, you have yet omitted to state one or two points that appear to us to have an important bearing on the matter. First, as plants in pots are affected similarly to the Vines, the foliage being hard and crumpled, you could easily ascertain whether the roots are healthy, at least up to the time that growth ceases; if they are you would have strong evidence that the cause of the injury is not in the soil. Secondly, you do not inform us whether you syringe the Vines and plants or not. The Vines are certainly in a very unsatisfactory state, and judging from your letter and a close examination of the growths sent we conclude that there has been an excess of moisture in the atmosphere of the house. The leaves appear to have been quite gorged with moisture, and it is certain they have had more than they could digest, consequently the tissue was injured and then destroyed, drying up in its present form. We are confirmed in this view of the case by the fact that the large leaves are not injured to nearly the same extent as the small; the former can to a considerable extent elaborate the moisture, the latter cannot. Are the tanks in the house uncovered? If they are very large and exposed we think they are the source of the evil, and if you syringe that will aggravate the injury. Water from chalk is not usually injurious to vegetation, and in this case we do not attribute the injury to the quality of the water, but rather to an excess of it, the growths appearing to be quite congested. If the tanks are open cover them securely; employ the syringe cautiously if at all; ventilate freely night and day, according to the weather, and see that every leaf is exposed to the light. We should remove all the worst growths, as their retention cannot be of any benefit to the Vines, and possibly if you carry out our suggestions the subsequent growths will be more healthy. We suspect that if you were to permit a portion of one of the Vines to make growth outside the house that it would not be in the condition of the examples that you have sent to us; and if you were to prune the affected Fuchsias and plant them outdoors we think the succeeding growth would be healthy.

Insects—Fragile Boxes (J. L. C.).—The lid of the fragile chip box was broken in the post, and the insects appear to have escaped, for there was not one in the box on its arrival. Stout boxes or tin canisters should be employed for sending specimens. We have this week received parcels of flowers and fruit quite crushed and the contents spoiled.

Names of Fruit (E. J. L.).—The Strawberry is the Bickon Pine. (R. Gilbert).—The Strawberry is in our opinion decidedly President, but we have seen many exhibited under this name that were Sir Joseph Paxton. (C. Bennett).—The fruit was crushed in transit into a shapeless mass.

Names of Plants (A. B. P.).—7, Carex vulgaris; 8, C. binervis; 9, Arrhenatherum avenaceum; 10, Bromus mollis; 11, Avena flavescens; 12, Anthoxanthum odoratum. (J. Woodliffe).—1, Philadelphus grandiflorus; 2, P. coronarius; 3, Deutzia scabra; 4, Campanula rotundifolia; 5, C. glomerata; 6, Centranthus ruber. (H. G.).—A species of Carex, but the specimen was insufficient for identification. (W. M.).—The specimens you sent are the same as those you refer to. (W. H. Myers).—1, Galega officinalis; 2, Tradescantia virginica; 5, Philadelphus coronarius. We will endeavour to name the others in a future issue. (F. Smith).—Eriophorum polystachyon. (J. R.).—1, We cannot determine without flowers; 2, Galcopsis Tetrahit; 3, Polygonum convolvulus; 4, gallis arvensis. (Mrs. Pade).—Mimulus cardinalis.



POULTRY, PIGEON, AND BEE CHRONICLE.

THE ROYAL COUNTIES (HANTS AND BERKS)
AGRICULTURAL SHOW.

THIS is the third time within eight years that this Society has visited Portsmouth, and on this occasion it was upon a greatly extended scale as compared with its first meeting. Although it rained steadily the whole of the first day, yet on the three succeeding days the weather was fine, inducing the public to visit the Exhibition in very large numbers, and in consequence the meeting has proved not only successful as an exhibition, but also financially. Having reported upon the Show on each previous occasion, we have now only to remark that it has this time far exceeded in importance any former meeting as a spectacle and opportunity for the home farmer, and business men generally, to compare and estimate the merits of the various kinds of cattle exhibited, and the use and objects of the large and varied collection of agricultural implements and labour-saving machinery. The manner in which the Show yard was laid out, and the general management of the Show, reflects the greatest credit upon the Committee and Stewards, and particularly upon the worthy Secretary, Mr. Henry Downs of Basingstoke, whose unremitting exertions and courtesy was highly commended.

We propose to make our remarks on the Exhibition as the classes occurred in the printed catalogue, taking the sheep first. Class 1, Hampshire or West County Down sheep, for the best shearling ram, four entries.—First prize (£10) to Mr. Alfred Morrison, Fonthill, Wilts; second prize, Mr. F. R. Moore, Pewsey, Wilts. The sheep, four in number, shown in this class belonged to flocks which have for a number of years taken a leading position; in fact, ever since the flocks of Mr. Jas. Rawlence and the late Mr. Humphry have ceased to be exhibited in the Hampshire Down classes. The latter are very much missed, for although the prize animals, as stated above, have been certainly amongst the best for some years past, still they are not to be compared with the stocks of Messrs. Rawlence and Humphry. It is a great loss to breeders of the present day that these breeds had not been preserved in all their purity by some eminent breeders, for Mr. Humphry once told us that it was over twenty years before he had established the fixity of type and character his sheep possessed. We find, however, that nearly all the best sheep of the present time are derived from the blood of these two celebrated flocks; and as we cannot expect in our time to see such sheep again, yet they will ever be remembered as a type, and object to be attained if possible in the future by our most eminent and enterprising breeders of Hampshire and West County Downs.

Class 3, for the best ram of any age, three entries.—First and second prize to Mr. F. R. Moore, both of which sheep were really good animals, in proof of which Mr. James Read of Honington, Salisbury, was a competitor with a good animal which was highly commended. Class 3, for the best pen of five shearling ewes, four entries.—First prize to Mr. James Read of Honington; second prize, Mr. R. F. Moore of Pewsey, Wilts. The first-prize ewes were fine lengthy animals, well made up by feeding, and they richly deserved their position. The only defect we noticed in these ewes was their long light necks, or serag as it is called, with a rather thin shoulder top; still in this respect they are improved as compared with Mr. Read's former exhibits. The second-prize ewes were well got up and very symmetrical, the

shoulder top and neck being especially full and good, with fine quality, and short fine wool; they were, however, too short in the body in comparison with the first-prize animals, we therefore suggest that each owner has something to learn of the other before their stock will meet with our entire approval. Class 4, six entries, for shearling ewes, given by A. Morrison, Esq., of Fonthill. We, however, find little worth attention in this class, except that having been kept in the flock until within one month of exhibition they must all have been well fed during the season, especially those belonging to Mr. Newton of Wallingford, Berks, who received both first and second prizes. The other competitors had the reserved number or obtained high commendations.

Class 5, for the best Hampshire down ram lamb; three prizes given by the Right Hon. the Earl of Portsmouth; nineteen entries. The lambs in competition in this class were extremely fine, and in which many of the best and most eminent breeders of the day competed from Hants, Wilts, and Berks. The first prize was awarded to Mr. Wm. Parsons of West Stratton, Micheldever, Hants, for a lamb only about seventeen weeks old, who by gaining this prize has secured high honour, and most certainly deserves it, for we do not recollect seeing so fine a ram lamb ever before exhibited, for it must be remembered that in Mr. Humphry's time lambs were not exhibited, either singly or in pens of five, as at present. The second prize was taken by Mr. F. R. Moore; and the third prize by Mr. A. Budd of Overton, Hants, with two beautiful lambs of large size, capital quality, and great weight for age, being only about eighteen weeks old. Class 6, for the best pen of five ram lambs bred by exhibitor; nine entries.—The first prize was awarded to Mr. Wm. Parsons, the winner of the single ram prize; and this is a great victory, when we consider that the exhibitors in this class contained the names of the best breeders and greatest prizewinners in former meetings of this Society. Two of the lambs in this pen were little inferior to the single lamb in Class 5, the whole five being as fine as any lambs we have ever seen. Their quality was very remarkable as well as their size; they had plenty of firm flesh, fine wool, and were matching in colour. The second prize was taken by Mr. R. F. Moore; third prize to Mr. Jas. Read; reserved number belonging to Mr. John Barton, Basingstoke.

Class 7, for the best pen of five ewe lambs, bred by the exhibitor; eleven entries.—This was an unusually large competition. First prize Mr. Wm. Parsons, who again triumphs over all opponents, and this in a competition with experienced and most eminent flock masters at former meetings, and especially we may name Mr. Morrison, who has been at the top of the class for a number of years, and who on this occasion only succeeds in obtaining the second prize. Mr. Parsons, having in these three important classes taken the first prize in each, may be said to possess the best sheep of the Hants or West County Down breed, and this being the case his stock will be sought for at high figures at his annual ram sale, and whatever price they may make will be no more than a just reward for his intelligent selection of stock, his judicious mode of breeding and feeding, and his liberal investment of capital in stock farming. Class 8, South Down sheep, for the best shearling ram; seventeen entries.—These prizes were well contested by eminent breeders. First prize taken by Mr. H. Gorringe, Brighton; second prize to Mr. H. Penfold, Chichester. All the animals competing in this class were handsome well-bred sheep; but still we noticed that they were smaller than those formerly shown at the Royal meetings by Jonas Webb, and latterly by Lord Walsingham, and we consider this a matter of immense importance, for size should never give way to a smaller and more delicate breed of stock, seeing that in times gone by the Sussex breed from the flocks of the Duke of Richmond, Mr. Rigden, and the two breeders above mentioned, although they were of larger size, yet the highest quality of flesh and wool was maintained.

Class 9, for rams of any age.—The first prize was taken by Mr. Gorringe, the second by Mr. C. Chapman, Frocester Court, Stonehouse, and these were great honours to win, when we note that the Judges commended the whole class. This breed of sheep from time immemorial has been reared on the chalk hills of Sussex, and have contributed largely to the improvement of other breeds in Dorset, Wilts, Berks, and Hants, when the local breeds of horned sheep were given up many years ago. And in many instances in years to come they will occasionally be used for crossing and improving other stock just in the same way as Mr. Humphry improved his West County Downs by the use of Jonas Webb's rams of the Southdown breed about forty years ago, at the time of the first Royal Society of England meeting held at Oxford. Class 10, for the best pen of five shearling ewes, five entries.—This was an extremely handsome lot of ewes of wonderful quality. The first and second prizes going to the same gentleman who stood first and second in Class 9. We often hear various opinions expressed about the light weights of this breed, and as not being adapted for feeding the million, but it must be remembered that they will not only live upon scanty keep, but that greater numbers can be kept in comparison with all our larger breeds; at the same time it must not be forgotten that this stock is admirably adapted for furnishing small joints of the highest quality of mutton, and are in consequence much required for feeding the parks and pastures, and furnishing meat for the establishments of noblemen and gentlemen in various districts of England. Oxfordshire Down sheep, Class 11.—For the best shearling ram, only two entries, by the same exhibitor, Mr. G. Adams of Farringdon, Berks, who takes both first and second prizes. On referring to our notes on this Society's meeting at Southampton in 1878, we find that the same breeder took the first prize both for shearling ram and five shearling ewes on that occasion, but we did not think his stock quite so good as they were two years ago. The Oxford Downs are, however, a noble breed of sheep, being originally a cross between the Cotswold and Hampshire Down breeds. One of the first and most successful breeders was the late Mr. S. Druce of Ensham, Oxon, who commenced the cross in 1833, and later on Mr. C. Howard of Bedfordshire. These sheep are admirably adapted for crossing with the Hampshire Downs, for in ordinary farming the cross will produce 20 to 25 per cent. more lambs and give stock of a larger size and heavy weights for age, and prove better than the Cotswold cross, because they maintain a dark colour which is valued by the grazier, as they make a higher price as mutton, and yet cut a heavy valuable fleece of wool. Long-woolled sheep, Class 13, five entries. For the best shearling ram, two prizes.—First prize taken by Mr. R. Swanwick, Cirencester, who also wins a Champion prize. Second prize to Messrs. Gillett, Farringdon, Oxon. These were magnificent sheep as regards size and weight for age, and would certainly stand well in any exhibition in the kingdom. Class 14, five entries. For the best ram of any age.—Messrs. Swanwick & Gillett stand in the same position as in Class 13 with grand sheep, well meriting the prizes obtained. Class 15, for the best pen of five shearling ewes.—Messrs. Gillett obtained both prizes in this class, which are remarkably fine specimens of the Cotswold breed, and will go far to ensure success to the owners at future exhibitions. The Judges in all the sheep classes were Mr. John Ford of Rushton, Blandford, Dorset, and Mr. J. R. Neate, Micheldever, Hants, both of them gentlemen of great experience, and we find that their awards have given great satisfaction to the exhibitors in all the classes.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The horses will have constant work and of various kinds. Ploughing, working with harrows, &c., after green crops will now be going on in preparation for drilling with turnip seed. This is now a good time for sowing turnip seed for a crop for winter use, as they are sure to stand the frost if not sown too early; at least this applies to the Grey Stone and Red Mammoth varieties, the two varieties which we recommend for general use and purposes, being not only quick of growth but very nutritious, and maintain their feeding quality for a long time. The sooner the seeds of turnips are drilled after the land is ploughed the better; we often drill the seed the same day the land is ploughed, especially when the land is likely to become too dry. Hay-carting and stacking will still be going on; our usual plan is when the weather is favourable to work the horses on the land up to midday, and cart the hay to rick in the afternoon, because we have always found hay in better condition after midday than in the morning if the weather is settled fine. The growth of hay for sale is attracting more attention than usual at present, and the land should be seeded accordingly. For instance, the planting of broad clover alone cannot with certainty be assured on any land; we therefore advise that 8 lbs. of broad, 4 lbs. of alsike, and 1 bushel of giant saintfain seeds per acre should be sown upon ordinary mixed soils or strong loams, but without any rye grass of

any sort in the mixture, and particularly when the land is intended to be sown with wheat afterwards out of clover lea. Now this mixture will produce hay of the very finest quality, an important matter when grown for sale, and with saintfain in the mixture it can be made into hay in nearly as little time as with rye grass, and the hay will be worth from 10s. to 15s. per ton more. Let us consider the probable produce per acre, and as this mixture of grasses will produce two good cuttings, we may therefore calculate that 3 tons per acre at least will be the result; the value of £4 per ton may be expected upon the average, although sometimes a portion may be partially damaged, making £12 per acre. This compares favourably with any cereal production at prices which we are likely to obtain whilst unlimited importations prevail. If, however, the sale of hay is not intended we advise the home farmer not to risk the making of hay, but to cut the clover, &c., as a mixed crop for use as required. Three cuttings may then be often obtained upon good holding land and be employed as green fodder for the cattle in boxes, the dairy cows in stalls, and horses in their stables, the dairy cows receiving a bait night and morning at milking time, thereby supplementing the food whilst grazing on the pasture or park lands. In this way the clover crop takes but little labour and no risk, and resulting also in the making of large quantities of valuable manure. There is another plan of furnishing dry fodder which we wish to lay before the home farmer, the growth of which, too, will furnish a good alternation with clover (which on many soils is an actual necessity), we mean the conversion of green rye or winter oats into hay. Where the land is free from couch grass these crops may be sown and removed in time for the growth of crops of mangolds, Swedes, early turnips, cabbages, and carrots planted or sown in good time. In ordinary seasons the rye or oats being cut and tied into small sheaves, and half the land being ploughed between the stooks of straw set up, these may then be moved on to the land just sown and the remainder of the land drilled, and as soon as the sheaves are dry enough to be stacked for hay they may be removed. Upon this system there is little if any risk of damaging the "Prairie hay," as we call it; for it will come out of the stack a wet brown colour with much aroma, and of great feeding value, as shown by the analysis of straw cut green by Dr. Voelcker, and far better for feeding fattening cattle than any hay, and also well adapted for chaffing for horses, sheep, dairy cows, &c.

Hand Labour.—This will now be required in many different kinds of work; and in order that hand labour may be available for the work of the farm, labour-saving machinery of every kind should be employed as much as possible, but especially the straw elevator at the time of stacking the hay. The second and last hoeing of mangold should now be done, the hoeing of Swedes, also of all root crops as they become fit, and when the plants are large enough for singling the work should never be delayed. Shepherds now will find abundant employment, for this is the time for weaning of the lambs, and it is well to remove the ewes from the lambs instead of the reverse course. The lambs will be more contented after losing their dams if allowed to remain a few days in the field or pasture where they have been accustomed to be fed, and especially if they have been allowed artificial feeding stuffs, such as cake of any sort, cracked beans, &c., Dairy cows in hot weather often receive but little attention, and are allowed to take the shade of trees; but we prefer if near the home-stead to take them to the stalls out of the way of the flies, and give them a bit of any green fodder, remaining until milking time, they will then give down their milk more freely, and more of it, than when under trees or hedges, where their manure is also lost. The home farmer should now be prepared with a well-bred yearling bull in readiness to be turned out with the yearling off heifers the first week in August; the calves will then be due in May, when the grass will be ready for the heifers after calving, as they cannot be kept too well, a flush of milk being desirable, and in the first year the calves should be allowed to suck until fat, and also others afterwards for veal. This improves the animals ever after as dairy cows.

ROYAL AGRICULTURAL COLLEGE.

THE Principal of the Royal Agricultural College, Cirencester, feeling that it is in the highest degree desirable that members and past students of the College, and other gentlemen having special attainments in science or having experience as agriculturists and stock-keepers, should co-operate with the professors and students of the College in agricultural research, invites qualified persons to assist personally or by letter in the following investigations. For the attainment of the objects in view it is proposed to establish the following Committees, each having its own special line of research—

1st, *Live-stock Committee.*—To inquire into the means for regulating the breeding powers of animals. (a) Conditions favourable for reproduction; (b) conditions which prevent reproduction; (c) conditions controlling the sex of offspring; (d) conditions influencing the colour of offspring; (e) any other branch of the inquiry which may be considered desirable.

2nd, *Meat Committee.*—(a) Conditions favouring the economic production of meat; (b) conditions which influence the quality of the meat produced; (c) any other branch of the inquiry which may be considered desirable.

3rd, *Farm Seeds Committee.*—(a) Conditions which influence

the suitability and the productive powers of farm seeds on different soils and in different districts; (b) conditions regulating the change of seed; (c) any other branch of the inquiry which may be considered desirable.

4th, *Plant-growth Committee*.—Evidences given by plant-growth as to the quality, composition, and capabilities of different soils and in different districts.

The work proposed to be carried out by the above-named Committees will not in any way interfere with the prosecution of research into other details of agricultural science in which the staff of the Royal Agricultural College is or may be engaged, as it is intended for an additional series of investigations.

"THE PERFECT MILK PAIL."

WE were much annoyed, not to say disgusted, this spring by a dust—so fine that it passed through the strainer—falling from the cows into the milk pail, and the utmost care of the dairymaid could not prevent it. The animals were not in any exceptionally dirty state, nor were they at all unhealthy, but from being housed through the long winter and spring their coats were charged with this fine dust, which fell into the open-mouthed pail at every movement. That this is no uncommon evil would appear from an American invention apparently intended expressly to counteract it. This is called "the perfect milk pail," and it certainly would exactly have met our difficulty had not the advancing season, bringing a turn-out of the cows, come to our relief. But

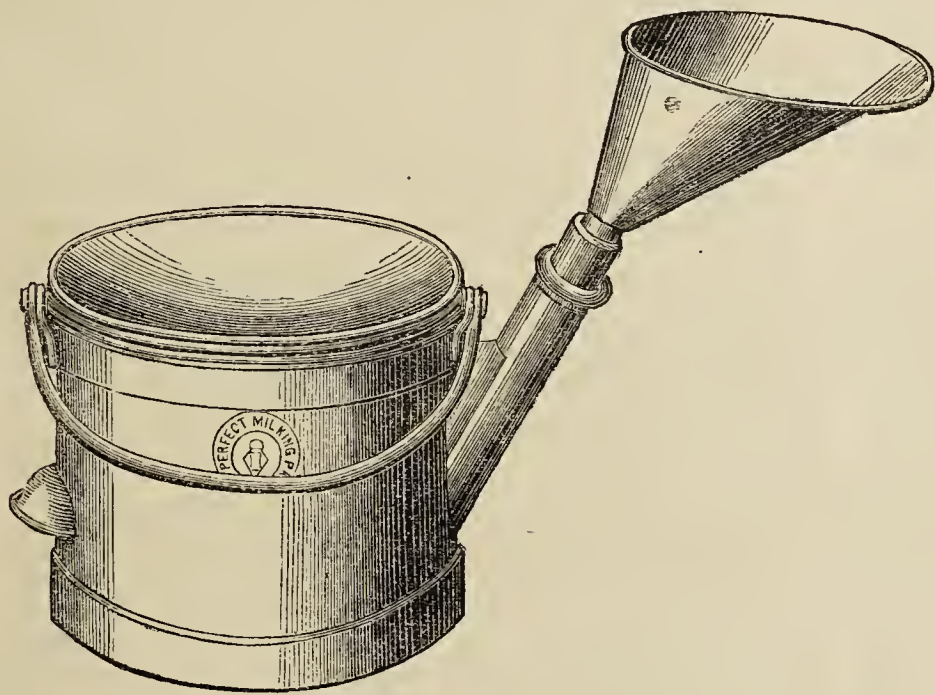


Fig. 11.

winter troubles will be coming round again, and possibly some enterprising reader of the *Agricultural Gazette* may already be able to pronounce on the pail, or be disposed to go in for a trial of it.

The manufacturers claim for it "that the milk is so enclosed that it cannot be reached by any effluvia, to say nothing of its freedom from filth." It is a strong fourteen-quart pail with a dishing cover forming the milker's seat. A milk receiver or funnel projecting forwards and upwards from the top of the pail has a wire gauze strainer inside; and the stiff rubber tube, by which it is attached to the pail, being flexible, it can be readily turned aside if the cow starts or kicks, or while brushing the bag, or making other convenient arrangements conducing to cleanliness, freedom from odours, &c., all of which are most desirable conditions of dairy management; and, to be effectual, should commence at the time of milking, as no later care can undo evils contracted then. —A. L. O. S. (in *Agricultural Gazette*).

[We are enabled to give an illustration of "The Perfect Milk Pail," through the kindness of Messrs. Carson, Bachelor's Walk, Dublin, who furnished us with the block.—EDS.]

THE FOWLS OF THE MEDITERRANEAN.

THE nomenclature of our breeds of poultry and Pigeons has not always been fortunate, and when once a race has become popularly known by some incorrect name it is next to impossible to get it changed. Cochins will always so be called in spite of the now

undisputed fact that their home is China, where they have for ages been known in what fanciers would call an "unimproved" form. Hamburgs and Polish will still keep their names, in spite of the fact that no possible connection can be found between them and their reputed countries. With some races it is otherwise. Spanish, and the various sub-varieties of the breed which we know as Minorcas, Andalusians, &c., belong certainly to a breed which has been long spread over the Peninsula. As we find the French breeds here and there where attention has been given to poultry kept in purity and with regard to certain points, but for the most part greatly confused, so the Spanish breeds, retaining some general and defined characteristics of form in all minor points, are found of the most charming variety.

The object of this present letter is not so much to speak of the fowls of the Mediterranean in general as of the Leghorn or Italian breeds in particular. If my memory does not deceive me, the Brown and White varieties of Leghorns which have become so soon popular in England, came to us first from America, bringing their name with them. For once in a way there seems to have been really some reason for their bearing it. Doubtless birds of a certain degree of purity had gone straight from the port of Leghorn to some fancier in America, who appreciated the merits of the race and attempted to improve it. When Leghorns were far less known than now I was one struck by the size and excellence of the eggs at an obscure village in the Alps at the extreme edge of the Italian frontier. I asked to see the fowls that laid them, and was not a little surprised to find them very fair specimens of the two breeds of Leghorns, all of course mixed together, and one or two hens among them of the same characteristics, but varying in colour. Since then at various times I have been able to observe the poultry in almost every part of Italy, and have found them more or less kindred to this breed from the French frontier to the Adriatic, and from the Alps to Cape Spartimento. At Leghorn, however, and in the neighbouring part of Tuscany they are decidedly finer than elsewhere and far more uniform in characteristics. I have specially observed some pretty Cuckoo specimens, and fancy that the admirers of the breed would not find it difficult to procure birds from which to raise a permanent Cuckoo variety. For the most part through all the Italian peninsula the peculiar single comb, the Leghorn carriage, and yellow legs are everywhere seen in the poultry. As to size the fowls are simply miserable. Everywhere they show signs of degeneracy and starvation. I do not remember where or by whom Spanish and Spanish sub-varieties were first classed with Leghorns as "the fowls of the Mediterranean;" certainly the classification was a very apt one, for there is a most distinct relationship between these Spanish and Italian races in spite of their differences, especially of colour. In both the single comb is almost invariable, in both the general form and earriage is alike; both are good layers of—for their size—large eggs, and both are poor mothers. Here in

Sicily I still find some birds of the Leghorn type, but there have also evidently been many importations from the East and Spain. Feather-legged and Spanish-like birds both abound in the ports, and the result is that the common street fowls are at least twice the size of those in Italy. These constant importations seem to have invigorated the gallinaceous race as much as the various waves of immigration have the human population.

Those of your readers who have shown so much spirit and perseverance in the improvement of Leghorns may be glad to know that their favourites evidently have a pedigree in the land of their origin.—O. ERNEST CRESSWELL, *Syracuse*.

BIRD BREEDING—MULES AND HYBRIDS.

IN reply to questions from Mr. H. M. Buffham relative to breeding with the Canary and Yellowhammer or Chaffinch, I have never heard of the Yellowhammer (M'Gillivray) or Yellow Bunting (Bechstein) breeding with the Canary, and after the two blank nests of eggs I think it would be hopeless in further pursuing the matter. The Chaffinch (Fringilla) might be the more likely of the two to cross with the Canary, and even from this particular Finch the obtaining of mules would be still more rare than young from the Bullfinch and Canary. Bechstein says—"Instances have occurred of Chaffinches pairing with female Canaries and producing hybrids, and it is also said with the Yellow Bunting." During many years' experience and knowledge of the various crosses in breeding mules or hybrids I cannot bring to mind an instance of a mule having been bred from the Chaffinch and Canary. Yellowhammers and Chaffinches make

very good aviary birds in company with the Goldfinch, Bullfinch, Mountain Finch, Linnet, Greenfinch, Siskin, and Redpole. The offspring of the Siskin and the Canary is very prettily feathered and sometimes nicely variegated, and they make sweet songsters brought up within the hearing of a good Canary tutor.—G. J. BARNESBY.

VARIETIES.

GREAT AUK EGGS.—Two genuine eggs not previously recorded were lately discovered in an old private collection in Edinburgh, and some of the leading naturalists being of opinion they may be the last unrecorded specimens that will be found, were sold on the 2nd inst. by Mr. J. C. Stevens, 38, King Street, Covent Garden, London. One specimen for £100, and the other for 102 guineas.

BUTTERCUPS IN PASTURES.—A correspondent, "NORTH WOOLTON," writes in reference to our advice given on page 20—"There is no need to burn the turf. Geese will take out all the bulb roots of the buttercup; when there is a great many to root out time must be allowed." To this we reply there are two species of *Ranunculus* in pastures which are known by the name of buttercups—*R. bulbosus* and *R. repens*. It is the former that geese devour with avidity; the latter must be eradicated by weeding. The tall *R. acris* is also a buttereup, and is abundant in some pastures.

PEDIGREE CORN.—An experienced correspondent writes to us as follows:—"Farmers, although growing full pedigree corn, have made serious mistakes in consequence of expecting to obtain large ears of corn—either of wheat, barley, or oats—when the land has not been rich enough to produce a full crop; but it will be found that pedigree corn will require the land to be properly tilled and manured, and will then yield a more valuable produce than ordinary grain. It is also necessary to have the land deeply tilled for pedigree grain, but especially for wheat, because it will root very deeply, say several feet, if the roots can penetrate the soil; and we draw a comparison in the rooting of grain to that of timber trees, the wheat rooting deep like the oak, whereas oats and barley, but particularly the latter, root near the surface, more like the ash and the elm. The change of seed from different soils has always been recognised as advantageous, especially when taken from the poorer soil to the better. There will be, however, some difficulty in the change of seed of pedigree grain unless pains are taken to obtain for a surety seed selected by the grower, or otherwise the home farmer may by his own intelligence and care provide seed of his own growth, particularly where the necessary variations of soil occur upon the estate or occupation in hand. In conclusion, we feel that whatever views farmers in general may entertain as to the merits of Major Hallett's system of growing pedigree corn, the principles upon which he has acted are correct—that in Nature like produces like; and that he has bestowed greater attention upon the subject than any other man, and that his exertions are worthy of our high commendation."

"THE MARK LANE EXPRESS."—This important agricultural paper has appeared this week in a new form, and not only new, but decidedly much improved. The pages are much smaller than before and proportionally more numerous, and the paper is more handy for reading and convenient for binding. We say nothing about the improvement relative to the quality and variety of the matter, for in these respects it was good enough before: but the most welcome change of all is the change of price, which is reduced to 3d.

OLEOMARGARINE.—Last Saturday's issue of the *Irish Farmers' Gazette* gives full details, with illustrations, of the manufacture of this article in America from beef fat, and remarks that as it is the producers of second-class and inferior qualities of natural butter who suffer most from the competition caused by the introduction of oleomargarine, it is evident that the only way in which that competition can be met is by improving the quality of pure butter. In this, as in the case of cattle, the home-made and home-produced article will maintain its ground against foreign competition, provided it is of superior quality. Producers of inferior articles, whether meat, butter, or cheese, have now no chance in the market. At the same time we are of opinion that there should be some legislative action taken with regard to the sale of oleomargarine, so as to protect consumers who may purchase it under an impression that it is genuine natural butter.

THE HARVEST IN ITALY.—The Italian Minister for Agriculture and Commerce, in his monthly report for June, says, "The state of the country is very good, and promises a rich harvest in all products. Grain could not be better; the harvest has already begun in the southern provinces, and is equal to expectation. Maize is also in fine condition. The vines, except in some places where they were damaged by the frost, promise a copious harvest, and so do the olives. The harvest of cocoons is most abundant, except in a few places such as Belluno, Como, and Modena, but prices are unsatisfactory. Other products, such as oranges and lemons, fodder, &c., are in excellent condition, with the exception of hemp, beans, and a little fruit in some localities."

PEKIN DUCKS IN AMERICA.—A correspondent of the *Prairie Farmer* writes as follows in reference to this breed:—"I speak from several years' experience, and I say that so far as my knowledge extends the Pekins are decidedly the best breed of Ducks that we have in this country—best for laying, best for feathers, best for the table, and best for market, and I shall raise them as long as I keep Ducks, or until I find a breed that suits me better. I don't raise Ducks for the fun of the thing, or to look at, or to brag about, but for profit, and I can get more profit from the Pekins than from any other breed that I know anything about; and just so soon as I find a more profitable breed of Ducks I shall acknowledge the fact, invest in the Ducks, and advise others to go and do likewise. I don't want to keep all the good things to myself. I raise poultry for market almost exclusively, and have sold dozens of pairs of these Ducks that weighed from 20 to 22 lbs. per pair fattened for market; 22 lbs. is considerably above the average weight of the best breeding stock; 15 lbs. per pair probably comes nearer the average. The first pair of Pekins that I ever owned weighed 16 lbs. when the Duck commenced laying in February, and I now have a pair that weighed 18 lbs. the 1st of March. There is no secret about this gain above the average weight; anyone can attain the same results by proper selection of breeding stock, and by care and abundant feed. I never allow an inferior or undersized Duck in my breeding yards; I always breed from the largest, most vigorous, and fully developed birds that are at least two years old; and from the time the ducklings are out of the shell until they are sent to market I give particular personal attention to their care and food."

EARLY PROGRESS OF CHEESE FACTORIES IN ENGLAND.—The quantity of cheese sold at the Derby factory in its third season was over 49 tons, and the average price realised 74s. 7d. per cwt.; the total cost of manufacture 7s. 1½d. per cwt. of the cheese; and the dividend paid on the milk within a fraction of 6¾d. per gallon. Notwithstanding various drawbacks, the year 1872, the third season of the two factories, was one which added credit to the factory system; for, after paying all expenses, a higher price per gallon of milk was paid than when the guarantee fund was in force, and this in spite of the price of cheese having declined several shillings per cwt. This result was highly creditable to the skill, the industry, and the perseverance of the respective committees, as it was an encouragement for the future. In the fourth season the milk-suppliers purchased the plant from the guarantors, taking full possession as well as entire management, and doing away wholly with the connection which till then had been maintained with the guarantee fund. Meanwhile the price of cheese had been advancing, and the results of the fourth season at Longford were more favourable than any of the preceding ones; the management and the manufacturers were alike thoroughly successful, and the business was a pronounced success.—(From "*Dairy Farming*" by Professor Sheldon, for June.)

DEATH OF MR. JOHN HUNTER.

WE last week announced the death of Mr. John Hunter, the distinguished apian, and we now give the following notice of him extracted from the *British Bee Journal*:—

"Mr. Hunter was born in London December 10, 1831. He was the second son of Mr. James Hunter of Bloomsbury, who was the founder, and for thirty-eight years the secretary, of the Royal Standard, one of the largest and most successful benefit societies in the kingdom. Mr. John Hunter was one of the originators of the British Bee-keepers' Association, and his interest in its welfare

he retained to the last. He was the author of the 'Manual of Bee-keeping,' which has now attained its third edition. He was the writer of the article 'Bee' in the last edition of the 'Encyclopædia Britannica'; also, in 1875, of a pamphlet entitled 'The Cottage Frame Hive,' specially written for the use of cottagers. He was for several years on the staff of the *Journal of Horticulture*, and also on that of the *Gardeners' Chronicle*, and was a constant correspondent to both British and American apicultural magazines. Many contributions from his pen will be found in the earlier volumes of the *Journal*. The paper which he read at the *Conversazione* on April 14, on 'The Future of British Bee-keeping,' will be fresh in the recollection of our readers. Mr. Hunter was selected by the Committee of the British Bee-keepers' Association, together with Mr. Cheshire, to compile the 'Handbook for Cottagers.'

"At the South Kensington Show in 1878 Mr. Hunter was awarded a silver medal for a very fine collection of microscopical objects illustrating the natural history of the honey bee.

"He was a member of the Quekett Microscopical Club of London, and also of that in Ealing; and on October 25, 1878, he read a most interesting paper on 'The Queen Bee, with especial reference to the Fertilisation of her Eggs.' This paper was published in the *Journal of the Quekett Club*. He was also for many years a member of the Entomological Society.

"Mr. Hunter's exertions and spirits were always in excess of his strength. He had been in very delicate health for many years, and succumbed after an attack of pleurisy, culminating in congestion of the lungs, of less than a fortnight's duration, at his residence at Ealing, on Sunday, the 27th June. His death will be a very great loss to the cause of bee culture and science in general."

EXPERIMENTS WITH FOUNDATION.

THE proverb "Time tries all" contains more than a little wisdom, and in order that all I have done with comb foundation might have that testing that time alone can give, I have remained silent for a week or two, but now proceed to conclude and summarise an account of the results obtained.

Mr. Jones, well known amongst apiarians as our Canadian cousin, who has with great pluck and energy secured, during travels undertaken for the express purpose, a large number of Cyprian and Holy Land bees, visited me a few days since in company with Mr. Hooker of Sevenoaks. Mr. Jones expressed very strongly his delight at the perfection of the combs produced, and at the simplicity of the means used, making wired foundation, even if it worked perfectly, unnecessary and uncalled for; but he quarrelled with the name "rakes," and there and then we agreed to the suggestion of my visitors that these wires should henceforward be called Cheshire's Foundation Fixers.

The fixers, up to the date of my last notes (page 425 of your last volume), had always so held the foundation that perfect combs made in stocks had been produced, and the experiments with swarms remained to be tried. I filled eight frames with foundation from top to bottom and end to end, did not wax-in any of the sheets, and gave to some five and to other six fixers. The swarm, a large one, hung principally on four combs. No sagging whatever occurred, but one comb bent slightly over for about $1\frac{1}{2}$ inch at the end, so that its edge for this length was not fixed quite in the middle of the top bar. Another swarm has been tried, receiving six sheets of foundation held by the fixers, and two of wired foundation. The first six sheets are now perfect combs; one sheet of wired foundation is waved or buckled a good deal at its lower part, the other is perfect. My conclusions are these:—With stocks the fixers are alone quite sufficient; with swarms it is wiser to wax to the top bar as well as use the fixers. That foundation should in no case extend quite to the bottom bar. I brought my sheets into contact with it, in order that the smallest stretching might make itself apparent, but the bees object; they are slow in finishing the lowest cells, and often nibble for themselves passages through the foundation above the bottom bar. It is clear also that the absolute filling of the frame with comb would oblige the queen, to her great risk during an examination, to continually pass from comb to comb on the outside of the frame. Although, then, the fixers admit of filling the frame, it is unwise to take advantage of it. A bare quarter inch beneath and at the ends should be left. The fixers must also be put into place by the assistance of the wood block as explained in the issue of May 27th, for if the pin be clearly and at once pierced into the sheet it holds with wonderful firmness, but if it be twisted about afterwards it enlarges the hole and loses its grip. When the sheet is given the first effort of the bees is to fix the pins, building around them little struts of wax; but if a tiny hole be made near to the pin the bees on the opposite side of the sheet seem to communi-

cate through it and dig away the wax around the pin until a hole nearly half an inch in diameter is made, it would appear with the idea of removing what they regard as an obstruction. All this will show the importance of fixing at once the foundation in its proper place. The pertinacity with which the bees build drone comb, cut out often by the vexed bee-keeper to be immediately replaced by more, many know to their chagrin; while the loss this involves, many, though a less number, understand. Here, however, we have the perfect cure for the evil, and a power of rapidly building up stocks with faultless comb which the old jog-trot bee-keepers find it hard to believe and impossible to realise. I am fully convinced that the proper, intelligent use of foundation in full size will double the produce and quadruple the pleasure to be got out of any apiary.

But it may be that these fixers will be useful, not only in preventing sagging and in securing perfect flatness in the comb, but in making it possible for new comb to travel. Last year at South Kensington was exhibited a sheet of foundation from Alsace, with a thin board between its faces. This foundation on wood has been tried in America and pronounced a partial if not a total failure. Mr. A. J. Root of Ohio thus speaks of it in his useful "A B C of Bee Culture"—"In our apiary I have beautiful combs built on thin wood; but as the bottom of the cells is flat they are compelled to use wax to fill out the interstices, and the value of this surplus wax, it seems to me, throws the wood base entirely out of the question." Mr. Abbott, however, has been following out the idea of trying flat-bottomed cells on thin pine boards, and has succeeded in getting some of these built out perfectly, so that he is sanguine of success, which I see nothing to prevent, since bees can be made with a little management to build brood or store cells even on the top of sealed honey cells. I have more than one specimen now of comb, thus having three cells in cross section, two of honey, and one of brood. Should he succeed these combs would admit of any roughness during transit; but pending this result it will be interesting to state that, having to take a stock of bees in a frame hive to Peterborough, I put into the stock on a Monday morning a full-sized sheet of foundation, using my fixers. On Tuesday morning the hive had three distinct journeys by cab and two by rail, while the bees were shut up for twelve hours. The foundation converted into comb arrived in perfect order, and has made the return journey without injury. The continuance of the wires in their position will cause the loss of less than twenty cells in all.

I have been requested to state some particulars about size of wire, &c., and so add that the wire I used is best quality, No. 18 tinned wire, upon which pins are soldered by their heads at intervals of $1\frac{1}{4}$ inch. That the pins are afterwards cut down to half an inch in length, and the wire turned to a right angle top and bottom so as to just slip over top and bottom bar. These fixers with the boards can be had, I believe, of Messrs. Neighbour.

Let me here say that foundation for hives should be thick, and that thin sheet, such as is suitable for supers, would fail if treated as described.

Not only have I had the pleasure of showing these matters to Mr. Hooker, but to Mr. Cowan also, who had good opportunity of seeing the destruction of brood produced by wired foundation. I mention this that in the mouths or two or three witnesses every word may be established. The latter gentleman gives us a new suggestion by saying in a letter to myself, "I have given your 'foundation fixers' a good trial and find them most effectual. I had a lot of pieces of foundation in strips about 3 inches wide. I cut their sides parallel, squaring the ends, and fastened them into a frame with your fixers. They are all joined together and worked out, so now I shall not throw away any seraps."—FRANK R. CHESHIRE, *Avenue House, Acton, W.*

PIPING QUEENS.

I AM much obliged by Mr. Pettigrew's reply to my letter in the *Journal* of the 17th inst., and am now in a position to give further information regarding the two young queens. The one Mr. Pettigrew would term the "barking queen" has been duly fertilised, and three of the frames now contain a large quantity of sealed brood, &c.; but unfortunately the "piping queen," and consequently the older and the one to which most interest would attach, has been lost. I made no mistake as to the queen that left the hive, as she alighted on the ground in front of the hive, and I had a good opportunity of observing her. Mr. Pettigrew in his book states, "The eggs of virgin or unmated queens are male in character," but I take it this does not imply that a virgin queen can become a breeder of drones. Will Mr. Pettigrew inform me if I am correct?—M. H. MATTHEWS.

[In answer to the question at the close of the letter above, I have to say that virgin or unmated queens are all drone-breeders.

I am obliged by Mr. Matthews' letter, though it still leaves me in uncertainty as to the age of the young queen at the time of fertilisation.—A. P.]

FACTS ABOUT SWARMING.

SWARMING is natural to bees, and they prepare for the important event a long time before it takes place. Royal and drone cells are built, and when the time draws near such cells are filled with brood. Some small hives have been filled with combs without any drone cells; but in such cases, which are very rare indeed, the bees hatch a few drones in worker cells before or at the time of swarming.

Bees swarm in the first case by want of room. The populations of hives healthy and prosperous rapidly increase from March till May or June, when they begin to send off colonies. The clustering and accumulation of bees at the doors and outside the hives before swarming is of common occurrence in apiaries of small hives. In apiaries of large hives clustering is very unusual—hardly ever seen. Hence the first swarms of small hives are larger in proportion to size of hives than those of large hives. Perhaps the difficulty of ventilating hives of great capacity may be the cause of this difference. It is well understood that large hives yield larger swarms than small ones, though the first swarms of small hives are proportionately larger. This is not the case with second swarms or casts, for those from small hives are comparatively worthless, whereas the second swarms of large hives often rise in weight to 60 and 80 lbs.

It is noticeable that first swarms generally alight near home, and thus their queens can go with them without much fatigue. Second swarms with young virgin queens often settle at greater distances from their hives. Second swarms are less particular as to fine sunshiny weather at the time. Why swarms settle at all on trees and bushes near their hives is a question not easily answered. They do so from instinct, and in my opinion without ulterior intentions. Some writers think that they have ulterior intentions, and in alighting on a tree they are simply congregating and resting before they start for a new and distant home. I cannot take this view, for very often unhived swarms will hang for a couple of days, and when they go they again alight on a tree, and go from place to place without finding a suitable abode to live and labour in. Sometimes they find an empty hive, cavity in a tree or house, before swarming, and go direct to it.

When swarms alight it is desirable to have them at once and place them where they have to stand, then if the weather is unfavourable for outdoor work, to give the bees something to do indoors. I repeat what was stated lately in this Journal—viz., that no money spent in the apiary will secure a greater return than what is spent in feeding swarms after being hived. Swarms on being hived are placed at a disadvantage and have great difficulties to meet at first. Wax has to be secreted for comb-building, and foundations for the combs have to be laid. When this work begins more materials are produced than can be used, and hence the boards of hives become covered with scales of wax during the three first days of comb-building by swarms. As the combs enlarge and broader foundations are laid more workers can help. The feeding of swarms promotes comb-building and brood-rearing to a great extent. After the combs are of some size the bees seldom lose or drop the scales of wax. First swarms have pregnant queens, and hence it is of great importance to encourage comb-building at first in their hives to prevent the loss of eggs. The queens of second swarms do not begin to lay for eight or ten days after swarming. But even in their case it is advisable to feed during inclement weather. Hunger swarms are those that are starved out. Having no food and no brood to attend to they abandon their hives in despair, and often die of cold and exhaustion.

Some seasons bees swarm more readily than they do in others. The cause of this is unknown. The present season is remarkable for swarming. Bees set queens and swarm before they are fully mature, sometimes before their hives are filled with combs. In four cases this season I have been saved the trouble of swarming artificially by finding the swarms hanging on trees near their hives. Second swarms, too, are yielded as readily as first swarms.

In hot honey seasons swarms are smaller than they are in worse seasons. This is easily understood, for as bees do not sit on honey their space is contracted by all the honey they gather and store up, and this too contracts the brood combs; hence hives filled with bees and brood instead of honey yield the largest swarms.

The practice of giving swarms second-hand combs (biving them amongst combs formerly built and used) I have abandoned. If the second-hand combs are young and clean they appear to be and are of advantage to the swarms at first, and may in certain seasons be of advantage all the year through, but generally speaking

swarms that are housed in empty hives and receive a fair start at comb-building succeed better than those which receive combs.

After these commonplaces let me repeat what I have previously said, that age and experience increase my confidence in the swarming system of management.—A. PETTIGREW.

OUR LETTER BOX.

Young Ducks (Alderhurst).—There is little difference between barleymeal and oatmeal, so we employ the first named because it is cheaper. It is not necessary to boil it. It may be made into a paste with warm or cold water.

Feeding Cygnets (K. Y.).—The proper way to feed cygnets is to give them bran, oats, and meal in a large flat vessel, the bottom of which should be covered with gravel or a sod of growing grass, the food placed on it, and the whole covered with water. Cygnets, and even grown-up Swans, love to make "little dirt pies."

Canaries Troubled with Vermin (Embrey, Derby).—Your Canary is troubled with the red mites, which is the cause of so much uneasiness at night time. Pursue the plan we recommended in No. 1003, page 486, and you will rid your Canary of its tormentors. A white linen cloth thrown over the cage at night time is a better test to prove that there are vermin than placing the cage over a sheet of white paper. But why do either and prolong the annoyance to the bird? At once lay siege to the cage and nroot the enemy.

Bees Killing Drones (Juvents).—Your treatment of your bees is quite correct apparently. The bees killing their drone grubs is a good sign. They have given up further swarming.

Bees—Dead Grubs (N. McA.).—The grubs having been simply wrapped in paper and enclosed in a letter met the fate that might have been expected. They were completely crushed, and it was impossible to examine them. If you will send others in a small box as soon as possible they shall have our attention.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1880. June. July.	Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sun. 27	30.165	61.3	58.4	S.W.	59.2	74.8	48.7	123.7	43.8	—
Mon. 28	30.215	65.2	58.8	S.W.	60.0	74.8	57.0	133.7	53.5	—
Tues. 29	30.090	63.9	58.6	W.	61.2	78.6	56.7	128.4	52.4	—
Wed. 30	29.814	60.6	57.3	N.W.	62.3	79.8	54.6	127.1	50.1	0.033
Thurs. 1	29.681	64.2	60.4	N.W.	62.7	70.2	58.9	108.0	58.0	0.833
Friday 2	29.805	64.9	57.4	S.S.W.	61.3	69.3	49.6	122.0	47.8	0.170
Satur. 3	29.702	64.3	58.2	S.	60.7	71.4	55.2	118.4	51.7	0.853
Means.	29.925	63.9	58.4		61.1	74.1	54.4	123.0	51.0	1.889

REMARKS.

27th.—Very bright fine morning, in middle of day some heavy clouds about, fine bright evening.

28th.—Breezy, but very fine warm day.

29th.—Fine and bright, rather overcast at intervals.

30th.—Fine bright day, rather overcast in afternoon, beautiful evening.

July 1st.—Morning damp and rainy, thunderstorms and very heavy rain from noon to 2 P.M. In the five minutes between 1.56 and 2.1 P.M. 0.21 inch of rain fell.

2nd.—Quite like a warm April day, sharp showers with intervals of sunshine, overcast evening.

3rd.—Rain in morning and very heavy thunderstorm 6.16 to 6.40 P.M., with excessively heavy rain.

Temperature near the average, rainfall owing to the thunderstorms considerably above it.—G. J. SYMONS.

COVENT GARDEN MARKET.—JULY 7.

THERE are unmistakeable signs of the London season being over, prices falling considerably during the week, especially among best goods. Vegetables are in plentiful supply.

		FRUIT.									
		s.	d.	s.	d.		s.	d.	s.	d.	
Apples.....	½ sieve	2	6	4	6	Neetarines..	dozen	8	10	2	0
Apricots.....	box	1	0	2	6	Oranges	£ 100	4	0	12	0
Cherries.....	box	1	6	2	6	Peaches	dozen	3	0	10	0
Chestnuts.....	bushel	12	0	16	0	Pears, kitchen ..	dozen	0	6	0	0
Figs.....	dozen	10	0	12	0	dessert	dozen	0	0	0	0
Filberts.....	£ lb.	0	0	1	0	Pine Apples	£ lb.	1	0	3	0
Cobs.....	£ lb.	0	0	1	0	Piums	½ sieve	0	0	0	0
Gooseberries ..	½ sieve	6	0	8	0	Raspberries	£ lb.	0	0	0	0
Grapes, hothouse	£ lb.	1	6	3	0	Strawberries	£ lb.	0	6	1	0
Lemons.....	£ 100	6	0	10	0	Walnuts	bushel	0	0	0	0
Melons	each	2	0	4	0	ditto	£ 100	0	0	0	0

		VEGETABLES.									
		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	4	0	Mushrooms	pottle	1	0	1	6
Asparagus.....	bundle	0	0	0	0	Mustard & Cress..	punnet	0	2	0	3
Beans, Kidney....	£ lb.	0	6	0	0	Onions.....	bushel	3	6	5	0
Beet, Red.....	dozen	1	0	2	0	pickling	quart	0	0	0	9
Broccoli.....	bundle	0	9	1	6	Parsley.....	doz. bunches	6	0	0	0
Brussels Sprouts..	½ sieve	0	0	0	0	Parsnips	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Peas	quart	0	10	1	3
Carrots.....	bunch	0	4	0	6	Potatoes.....	bushel	3	9	4	0
Capicams.....	£ 100	1	6	2	0	Kidney.....	bushel	4	0	0	0
Cauliflowers.....	dozen	0	0	3	6	Radishes....	doz. bunches	1	6	2	6
Celery.....	bundle	1	6	2	0	Rhubarb.....	bundle	0	4	0	0
Coleworts.....	doz. bunches	2	0	4	0	Salsafy.....	bundle	1	0	0	0
Cucumbers.....	each	0	4	0	6	Scorzoneria	bundle	1	6	0	0
Endive.....	dozen	1	0	2	0	Seakale.....	basket	0	0	0	0
Fennel.....	bunch	0	3	0	0	Shallots	£ lb.	0	3	0	0
Garlic.....	£ lb.	0	6	0	0	Spinach.....	bushel	3	0	0	0
Herbs	bunch	0	2	0	0	Turnips	bunch	0	4	0	0
Leeks.....	bunch	0	0	4	0	Vegetable Marrows	each	0	2	0	3



15th	TH	Sale of Orchids at Mr. Stevens' Rooms, Covent Garden.
16th	F	Aylesbury Horticultural Exhibition.
17th	S	National Rose Show, Manchester; Sale of Plants at Westwood,
18th	SUN	8TH SUNDAY AFTER TRINITY. [Upper Norwood.
19th	M	
20th	TU	Leek Rose Show.
21st	W	Royal Horticultural Society's Evening Fête, South Kensington.

A WEEK OUT.—No. 1.

REMPLOYERS lose nothing by giving their gardener a week out; and if, as in my case, they desire him to extend the time, and are also willing to defray the cost, the result is of mutual advantage, for while I am benefited by the change, I am bound by every means in my power to render my services in the greatest degree satisfactory to those who have such claims on my efforts. My primary object in visiting the metropolis was to see a [London show—the Summer Show of the Royal Horticultural Society. I found it a good one, and as it was fully described in the Journal I will only say that the *Cattleya gigas*, a single, not a “made-up” specimen, exhibited by Sir Trevor Lawrence with a dozen spikes, some of them with six flowers, was worth a journey of nearly three hundred miles to see.

As the notes I took during my “week out” may possibly be of interest to your readers, I commence by narrating what I saw at

KEW GARDENS.

Upon application at the Curator's office I was affably granted admittance early in the forenoon of June 9th. The registration of name, residence, and object of visit gave free access to the finest collection of plants in the world. The privilege of a morning visit cannot be too highly valued by those from a distance, especially gardeners. In the grounds *Abies Smithiana* struck me as particularly fine, having a graceful drooping habit; it is one of the most handsome of the Firs. *Cupressus nutkaensis* (*Thujopsis borealis*), here, as everywhere that I have seen it, one of the finest and hardiest of Conifers, of stately pyramidal habit. *Æsculus carnea* (*rubicunda*) was in grand flower, and deserves to be more extensively planted. *Cladrastris tinctoria*, with bright green foliage and fine round head, would be useful in ornamental planting. The Guelder Rose (*Viburnum Opulus*), with its balls of white flowers was very effective. *Yucca recurva* was apparently much injured by frost, also *Laurus nobilis* (Sweet Bay), but starting freely. *Sequoia sempervirens*, injured by frost, but the contrast between the present and last year's growth was very noticeable. *Abies Douglasi* was also remarkable for the contrast between the old and new growth. *Jasminum revolutum* was fine as a wall plant, profusely flowered, yellow, and very fragrant. *Prunus triloba*, very free-flowering and vigorous, in a similar position. *Euonymus radicans* makes a fine wall plant, and there may be seen what can be done with Ivies as pillar plants, *Hedera canariensis aurea maculata* being very fine.

AQUATICS.—*Villarsia nymphaeoides* with fine floating leaves, to be succeeded by flowers by-and-by, was very distinct. *Caladium canadense* with arrow-head-shaped leaves, and petioles spotted with black, very fine; and not less so was *C. virginicum*, with pale yellow leaves in both instances rising above the water. *Typha stenophylla* and *T. angustifolia*, fine Bamboo-like plants, had a telling effect. *Lysimachia thyrsiflora* had yellow spikes of bloom, very fine, and much frequented by humble bees. *Littorella lacustris*, very pretty, grass-like, fine for margin of shallow water. *Juncus communis effusus*, with corkscrew-like leaves; very distinct. *Potentilla Comarum*, purple Burnet-like heads of flowers; effective. *Equisetum limosum*, of stately habit, leaves finely ringed; grand. *Acorus japonicus variegatus*, of stately growth, leaves banded with white; having a beautiful effect. *Iris sibirica alba*, white flowers; very fine. The Cotton Grass (*Eriophorum polystachyon*), fine. *Aponogeton distachyon* was in flower. There were, of course, Nuphars and Nymphaeas, but only having a display of leaves. Among bog plants grown in pots or pans the following were noticeable:—*Primula luteola* with long serrated leaves, Cowslip-like flowers, yellow, very pretty; *Epilobium longipes*, very beautiful; *Darlingtonia californica* appearing quite happy, as also the lovely Sundew (*Drosera rotundifolia*); *Sarracenia purpurea*, fine in flower; *S. flava*, quite yellow flowers; *Ranunculus Flammula*, yellow starry flowers, pretty; *Mentha aquatica* with purplish leaves, very distinct; and *Lysimachia rivularis*, of creeping habit.

HERBACEOUS GROUND.—*Polygonum molle*, with fine heads of bloom, forming a plant a yard high, flowers white; fine for any purpose. *Polygonum sachalinense*, grand foliage plant; leaves broad and distinct, growing 8 to 9 feet in height; fine for lawn. *Glyceria maritima*, fine tufty Grass, effective from its flowers. *Hablitia tamnoides*, a fine pillar plant of Hop-like appearance. *Aristolochia Clematitis* had pale green foliage with yellow flowers; the Spiderwort (*Tradescantia virginica*) having effective blue flowers. *Polygonum alpinum*, white, showing how fine it is for decorative purposes. Rain commencing to fall sharply I had only time to notice among the hardy Orchids *Orchis maculata*, *Habenaria bifolia*, white and sweet-scented flowers, and the fine purple-flowered *Nigritella angustifolia*.

CAPE HOUSE.—*Gladiolus Colvillei alba* in fine flower, and fine for decorative purposes; *Arthropodium cirrhatum*, grassy tufts with white *Ixia*-like flowers; and the broad-leaved *Crinum latifolium* with large white flowers, and sweetly scented. Of Cape Pelargoniums *P. tricolor*, with white and purple flowers, dabbled black, was very striking; *P. sanguinea*, with beautiful red flowers; *P. glauca*, bright, shining, distinct foliage and white flowers; *P. apiifolium*, finely cut Parsley-like leaves, and white and red flowers—very pretty, and would make a useful small decorative plant; *P. fragrans* having very pretty white flowers and delicately scented. *Oxalis carnea*, very pretty from the profusion of yellow flowers.

In the stoves were *Eranthemum Cooperi* with pretty foliage, *Ophiocaulon cissampeloides*, a fine creeper, having green flowers and variegated foliage; *Peperomia resedæflora*, having fine Mignonette-like spikes of flowers, white and very fragrant; *Scutellaria violacea robusta*, sky-blue heads of flowers, contrasting finely with *S. Mocciniana* (scarlet); *Eranthemum tuberculatum*, with tube-like white flowers, very fine; *Pavonia multiflora*, having terminal corymbs of flowers, bracteoles

bright red, corolla dark purple, stamens protruding and bearing bright blue anthers, and very floriferous—very fine; *Clerodendron fallax*, a grand old plant with large bright red heads of bloom, less seen than its merits deserve; *Licuala horrida*, a Palm with windmill sail-like leaves, very distinct, and would make a fine table plant when in a small state. *Erythrina marmorata* may be mentioned as suitable for table decoration in a small state and decorative purposes generally, being effectively blotched and spotted with white. *Phyllotænium Lindenii*, an Arad with white variegation; fine for decoration. *Dioseorea melanoleuca*, a handsome-foliaged climber, as silvery as possible, contrasting well with *Cissus discolor*. *Stove Aquatics*.—*Victoria regia* with leaves only, apparently very healthy; *Limncharis Humboldti*, with floating leaves and star-like yellow flowers; *Nymphaea cærulea*, with fine azure blue flowers; the curious and very pretty floating *Azolla pinnata*; *Herpestis reflexa*, with foliage as finely divided as *Asparagus*; the singular *Pistia stratioides*, and *Eichornia azurea*, a trailing aquatic.—G. ABBEY.

THINNING GRAPES.

A FEW remarks on this tedious but very important operation, which is now necessary with unforced Grapes, may be of service to the inexperienced. Unless thinned the berries are usually much too crowded to attain a good size, and the sooner it is done after the berries are nearly as large as peas the better. The long-pointed Grape scissors should be employed, and also a small clean stick, with which to turn and hold the bunches in a convenient position for thinning. As a rule the berries are arranged in triplets, the central berry being the largest. This only, in most instances, should be retained if large berries are desired; the remainder, including all that have an inward tendency, should be removed, the aim being to keep the bunches as open as possible without actual looseness. Insufficient thinning is one of the primary causes of bad keeping. Bunches not required to hang any length of time, and which may be destined to be packed for travelling, however, should not be thinned too freely, as firm bunches travel much the best. Such close-blooming and free-setting varieties as Black Alicante, Lady Downe's, and Foster's Seedling especially require careful thinnings, as the footstalks are very stiff, and the berries remain exactly as originally disposed; but the Black Hamburg and Buckland Sweetwater, having longer and not such stiff footstalks, will yield considerably, and if thinned accordingly may be depended upon, as the berries swell to a certain extent, to fill up any irregularities there may be. The Muscat of Alexandria should not be thinned till it is seen whether they have really set, as those berries that are stoneless will not swell much beyond the size of peas, and should be taken out. Loose shoulders of any kind may either be shortened in or neatly slung up with matting into a horizontal position. Employ clean scissors, and carefully guard against rubbing the retained berries, or a blemish will be the consequence.—W. IGGULDEN.

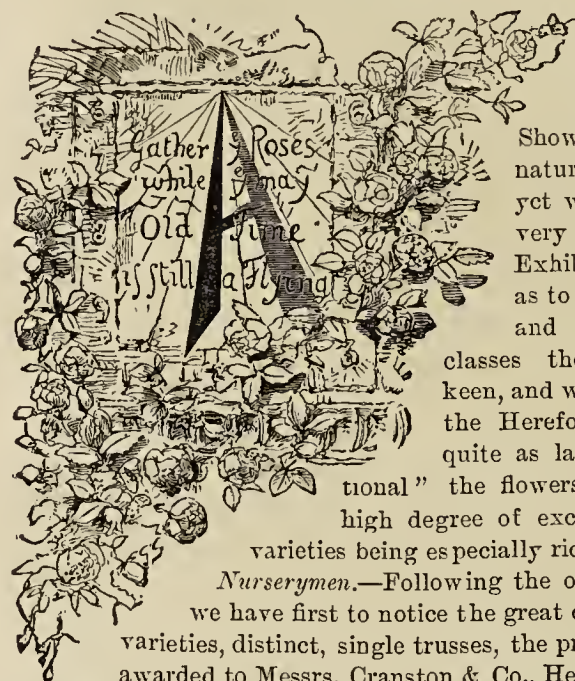
ROSES BOUQUET D'OR AND MADAME BERARD.

THESE two Roses, the former of which is classed as a Noisette and the latter as a Tea, have more than one point of similarity, for in addition to a likeness in colour both are vigorous growers. Where most of the newly budded standard Teas and Noisettes (Gloire de Dijon being of course a notable exception) and many of the H.P.'s succumbed to the frosts of last winter, and even the old wood of some of the summer Roses perished, nearly the whole of the budded and cut-back plants of Bouquet d'Or and Madame Berard withstood a temperature below zero quite unprotected and even better than Gloire de Dijon. When more known I anticipate that the two former will be as largely grown as the latter is. Of the other Teas and Noisettes every bud of Cloth of Gold has disappeared, and a solitary standard of Maréchal Niel only survived, although both were enveloped in pea haulm. All the old dwarfs of Maréchal Niel, too, are very much injured and the growth very weak. On the other hand, of those quite unprotected many buds of Souvenir d'un Ami have put forth, although late in doing so, and most of the old dwarfs are not materially injured. All the buds and the slightly protected dwarfs of Marie Van Houtte are gone, but a few of La Boule d'Or, Madame Bravy, Alba Rosea, and Madame H. Jamain have survived. If raisers will take Bouquet d'Or, Madame Berard, and even Souvenir d'un Ami and Madame Bravy, in hand we may expect to get a race of Teas and Noisettes quite as hardy as the average of the H.P.'s. Do any of your readers know the parentage of Bouquet d'Or and Madame

Berard? I suspect both have the blood of Gloire de Dijon in them.—T. LAXTON, Bedford.

ALEXANDRA PALACE ROSE SHOW.

JULY 10TH.



ALTHOUGH the weather during the week preceding this Show was of a stormy nature in many districts, yet we have to record a very fine and satisfactory Exhibition. The fixture as to date was fortunate, and in nearly all the classes the competition was keen, and with the exception of the Hereford Roses not being quite as large as at the "National" the flowers were mostly of a high degree of excellency, the darker varieties being especially rich in colour.

Nurserymen.—Following the order of the schedule we have first to notice the great class for seventy-two varieties, distinct, single trusses, the premier position being awarded to Messrs. Cranston & Co., Hereford, whose collection of flowers were mostly fresh and well finished. Messrs. Paul and Son, Cheshunt, were second with a fine selection of varieties, but the majority of their blooms though beautifully fresh and of good form were somewhat small. Messrs. Keynes & Co., Salisbury, occupied the third position, and Mr. G. W. Piper, Uckfield, the fourth. There were five competitors in this great class.

For forty-eight triplets there was a very close competition between five exhibitors. Messrs. Paul & Son were placed first with a good collection, Messrs. Cranston & Co. running them very closely for second honours; so close indeed were these two collections, that had the decision of the Judges been reversed no one could have complained. Mr. Turner, Slough, was third, and Messrs. Keynes & Co. fourth. In the class for twenty-four Roses, Hybrid Perpetuals only, three trusses of each, Mr. Turner was first with a fresh and bright collection, including *Senateur Vaisse* very good. Messrs. Cranston and Co. were second with particularly fine examples of *Marie Baumann*, *Louis Van Houtte*, and *Horace Vernet*. Mr. G. W. Piper and Messrs. Paul and Son were third and fourth respectively with fair blooms.

The competition was especially keen in the class for twenty-five Roses, single trusses, several admirable collections being exhibited. Messrs. Cranston & Co. occupied the premier position. Messrs. Turner, Slough, and Prince, Oxford, were so evenly matched that the Judges awarded them equal second prizes. Mr. E. P. Francis, Herts, was placed third, and Mr. John House, Peterborough, fourth, all exhibiting well. For twelve Tea and Noisette Roses Mr. Prince was well to the front with *Elise Vardon*, *Devoniensis*, *Madame Margottin*, *Madame Berard*, *Alba Rosea*, *Caroline Kuster*, *Perle des Jardins*, *Souvenir d'un Ami*, *Innocente Pirola*, *Marie Van Houtte*, *Anna Ollivier*, and *Unique*. Messrs. Paul & Son were awarded the second honours, Messrs. Cranston & Co. third, and Messrs. Keynes & Co. the fourth.

Amateurs.—For forty-eight varieties, single trusses, there were only three competitors. Mr. T. Jowitt, The Old Weir Hereford, won the premier award with a highly meritorious collection, not large blooms, but very evenly matched, and comprising *Marie Baumann*, *François Michelin*, *Madame C. Wood*, *Comtesse de Sereyne*, *Charles Lefebvre*, *Hippolyte Jamain*, *Ferdinand de Lesseps*, *Marie Cointet*, *Abel Carrière*, *Dupuy Jamain*, *Jean Liabaud*, *Prince Arthur*, *Marie Finger*, *John Stuart Mill*, *Capitaine Christy*, *Maurice Bernardin*, *Duchesse de Caylus*, *Louise Wood*, *Emilie Hausburg*, *Dr. Du Chalus*, *La France*, *Marquise de Castellane*, *Baron Bonstetten*, *Baronne de Rothschild*, *Thomas Mills*, *Pitord*, *Duchesse de Vallombrosa*, *Marie Rady*, *Souvenir d'Auguste Rivière*, *Madame Lacharme*, *Duke of Wellington*, *Monsieur Noman*, *Alfred Colomb*, *Comtesse d'Oxford*, *Reynolds Hole*, *Beauty of Waltham*, *Elie Morel*, *Louis Van Houtte*, *Madame Hippolyte Jamain*, *Dr. Andry*, *Mdlle. Eugénie Verdier*, *Monsieur Boncenne*, *Victor Verdier*, *Madame Sophie Fropot*, *Maurice Bernardin*, and *Etienne Levet*. Mr. T. Hollingworth, Maidstone, was a very good second, and Mr. J. Davies, Salisbury, third. The class for thirty-six varieties was better represented both in the number of the competitors and quality of the exhibits, Mr. T. Jowitt again occupying the premier position with a collection of fresh, even, and bright-coloured blooms. Mr. C. Davies, Banbury, was an excellent second; Mr. J. Davies, Salisbury, third;

and Mr. T. Hollingworth fourth. For twenty-four Roses, three trusses of each, Mr. C. Davies was a good first with fine examples of Charles Lefebvre and others.

Ten collections were staged in the class for twenty-four single trusses. Mr. G. Soames, Bourne, was an excellent first, having Etienne Levet, good; Marguerite de St. Amand, Charles Lefebvre, Marguerite Brassac—in fact the whole of the collection were charming examples, fresh and bright. Mr. Hawtrej, Slough, was awarded second honours for a very good collection. Mr. Wakeley, Rainham, and Mr. Sharp, Horsham, were placed equal third, while Mr. Harrington, Essex, occupied the fourth position. The class for twelve single trusses was remarkably well filled. There were twelve competitors. Mr. Pemberton, Havering-atte-Bower, exhibited a very fine collection, and was deservedly awarded the first prize. Mr. Mawley, Croydon, was a very excellent second with an even collection; Mr. Soames third; and the Rev. Alan Cheales, Surrey, fourth, with smaller but neat blooms. In the class for twelve Tea-scented or Noisette (amateurs) there were six competitors. Mr. Hawtrej was a very good first with Amazon, Rubens, Caroline Kuster, Marie Van Houtte, Madame Willermoz, Catherine Mermet, Alba Rosea, Souvenir de Paul Neyron, Madame Lambard, Souvenir d'Elise, and two others. Mr. C. Davies, who was placed second, had, amongst others, good blooms of Bouquet d'Or, Souvenir d'un Ami, Caroline Kuster, and Marie Van Houtte. Mr. W. Harrington and Mr. J. Hollingworth received the other two awards.

The classes for new Roses are always interesting to the connoisseur of Roses. It is there he can readily form opinions between the newer introductions and those varieties he is already familiar with. Messrs. Paul & Son and Mr. Turner held the chief positions, both being placed equal first. Messrs. Pauls' collection consisted of Marquis of Salisbury, deep rose with crimson shading; Madame Amelie Baltet, light satiny rose with silvery shade; Paul Jamain, bright red; Dr. Hogg, deep violet; Comtesse de Choiseuil, bright cherry red; Claude Bernard, deep rose; Duke of Teck, bright crimson-scarlet; Charles Darwin, rich crimson; A. K. Williams, a beautiful imbricated flower, bright red; Madame Alphonse Lavallée, a good Rose of the Marie Baumann type; Souvenir d'Auguste Rivière, crimson-maroon; and Constantin Tretiakoff, cherry red. Mr. Turner's collection comprised Duchess of Bedford, light crimson; Beauty of Stapleford, pale rose; Gaston Levêque, crimson; Countess of Rosebery, carmine; Charles Darwin, Mrs. Harry Turner, deep velvety crimson; Madame Lambard (Tea), rich creamy yellow; Egeria, silvery peach; Wilhelm Keile, bright red; M. Alex. Bernaix, A. K. Williams, and Mdlle. Marie Verdier. Messrs. Keynes & Co. were placed second, and Mr. G. W. Piper third; each of their stands contained many of the varieties named in the above collections. In the class for six trusses of any Rose of 1878, 1879, or 1880 Messrs. Paul & Son gained the first place with A. K. Williams, and Mr. Turner the second place with Charles Darwin. For eighteen English-raised Roses in commerce Mr. Turner exhibited a good collection of the following varieties:—Star of Waltham, Lord Clyde, Lord Macaulay, Royal Standard, Beauty of Waltham, Duchess of Bedford, Magna Charta, Duke of Edinburgh, John Stuart Mill, Miss Poole, Dean of Windsor, Prince Arthur, Princess Beatrice, Charles Darwin, Oxonian, John Hopper, and Sir Garnet Wolseley, and was awarded the first prize. Messrs. Paul & Son were second, and staged, in addition to some varieties in the foregoing collection, The Shah, Duke of Teck, John Bright, Harrison Weir, Duke of Connaught, Reynolds Hole, and May Quennell. Mr. Piper received the third prize. In the class for twelve varieties Messrs. Paul, Piper, and Turner were placed in the order of their names. These classes for English-raised Roses were very interesting, clearly exhibiting that Roses raised on this side of the Channel are in no way inferior to the French-raised Roses; in fact many of them are superior, the majority of them being indispensable even in the smallest collections. Messrs. Cranston and Keynes were awarded the prizes for trusses of Baronne de Rothschild; Mr. J. Wakeley and Messrs. Cranston for La France; Mr. Prince and Messrs. Cranston & Co. for Marie Baumann, in the order of their names in each of their respective classes.

Messrs. W. Paul & Son occupy the whole of two sides of two long tables running through the centre transept of the Palace with cut blooms of Roses representing almost every known variety, and said to contain no less than 1500 Roses, which supply he intends to maintain until Friday night next. In this gigantic collection we noticed A. K. Williams, and the best of the exhibition varieties of the Teas, Catherine Mermet, Isabella Sprant, &c., quantities of the pure white Madame Plantier, many varieties of Moss, in fact almost every distinguishable variety of both summer and autumn flowering Roses. Two first-class certificates were also awarded to this firm for H.P. *Pride of Waltham*, a variety resembling Mdlle. Eugénie Verdier or Marie Finger; for H.P. *Lady Sheffield*, a variety with the form and substance of Star of Waltham and the colour of François Michelin. Mr. Cannell exhibited collections of both double and single Zonal Pelargoniums and Verbenas which found a host of admirers, while Mr. Boller displayed a large collection of Cacti.

The entire Exhibition was well and pleasingly arranged by Mr. Forsyth Johnson and Mr. Cooke. Everything that could be done to facilitate the work of both staging and judging was admirably studied. We append the following notes of this Show by an experienced rosarian.

NEW brooms sweep clean. The change of administration has made the Palace a much more pleasant place for exhibitors. No more

relegating to an upstairs dining-room; the queen of flowers had the best of everything, and held her court in the large transept. Twenty thousand Roses were promised to an expectant public, and what with exhibition boxes in central lines, and Mr. W. Paul's beautiful background of Roses, almost endless on mossy banks, something like that number may have been attained to. At any rate this July 10th, I suppose, has seen the largest number of Roses ever brought together in England. Some, it is needless to say, were of high quality, and their less highly cultivated brethren were hardly less lovely. It certainly was an exceedingly pretty sight that central hall with its "twenty thousand Roses."

But the Rose Show? That, doubtless, is duly reported on. I shall merely mention some of my own impressions. The Teas were hardly up to the mark, they have not been this year anywhere. The best box I have seen this year was that of Mr. Prince of Oxford, which obtained the first prize. It contained amongst others a Souvenir d'Elise which would have gone far to dethrone the premier Tea of the Crystal Palace.

The new Roses, and the newest, were especially interesting. A triplet of Madame G. Luizet fully sustained the high character of that most lovely Rose. Its soft silvery rose, the colour and the polish of the most delicate light pink coral, make it, I consider, almost first of the Roses of 1879. Charles Darwin, Dr. Hogg, Countess of Rosebery, and Duchess of Bedford were all there to make good their rapidly rising reputation. Mr. Bennett's seedlings have now been exhibited often enough, specially by Mr. Prince, to make them tolerably well known. I have found both colour and substance in the two I have bloomed successfully, W. Saunders and Beauty of Stapleford, and the others seem to be rapidly making themselves a reputation. An interesting feature in the schedule was the class of English-raised Roses, in which Mr. Piper of Uckfield (a name rapidly coming to the front) made a good second to Mr. George Paul. But the newest of the new? These were notably Alexander Mackenzie of Mr. Turner's, a promising colour; and Mr. George Paul's two—Brightness of Cheshunt, which was a burning red spot even amongst all the light reds, but which is not absolutely promised to commerce, its originator being not quite satisfied yet as to substance; and another seedling which came under notice some two years ago when Lady Darnley was visiting Cheshunt. The dedication was offered and accepted, and in 1881 a very lovely Rose of an unusual and pleasing colour may be expected to be introduced to us, and come out as "the Countess of Darnley."

The rain was pouring down and the people pouring in as I left the Palace. I trust that the eager Rose world of north London took full advantage of the banquet of sight and scent prepared for them.—A. C.

HORSHAM ROSE SHOW.

THIS Show, having been postponed from June 29th, took place on July 7th amidst torrents of rain. It was not largely attended by visitors, but the exhibits were many, and the Roses for the most part of excellent quality. Horsham, with a liberality worthy of imitation, has always had open classes with good money prizes. This alone would attract good boxes. The Society is also strong in itself. The fact that it was found necessary to give two extras in two classes, as well as the number of boxes staged, will show how close the competition was in some instances. The silver medal of the N.R.S. for the best box of twelve in the Show was taken by J. B. Haywood, Esq., of Reigate. The prize medal for the best Rose in the room was gained by a magnificent Annie Wood (Rev. J. C. Cox Hales). A Marie Baumann (Haywood) and Louis Van Houtte (Sharp) were also very admirable. The Roses were much set off by rows of foliage plants tastefully arranged between the boxes, the whole under the able management of W. H. Saddler, Esq., Hon. Sec. First prizes were taken in the Association classes for eighteen and twelve varieties by T. Gravely, Esq., and J. B. Haywood, Esq.; for twelve Teas by Mr. A. Slaughter; and for six of the same kind by C. T. Cuthill, Esq., with a beautiful box of Marie Baumann. In the classes open to all England, twenty-four varieties, six boxes were staged, the awards being as follows—first, W. G. Sharp, Esq.; second, Mr. Prince, Oxford; third, Messrs. Mitchell, Piltown. In the class for twelve varieties ten boxes were staged, the Rev. A. Cheales securing the premier position; Mr. Piper, Uckfield, second; and J. B. Haywood, Esq., third; extra prizes being adjudged to Messrs. Prince and Slaughter. Twelve trusses, two varieties light and dark, open to all amateurs, offered by R. Ramsden, Esq.—First, Rev. A. Cheales with La France and Pierre Notting; second, T. Gravely, Esq., with Fisher Holmes and Baronne de Rothschild. Twelve of the same kind, first Messrs. Piper with a box of wonderfully even blooms of Paul Verdier.—B.

OENOTHERA BISTORTA VEITCHII.—This is a beautiful little yellow dwarf annual that handsomely peeps out in the shrubbery or herbageous border from between green foliage, the soft yellow colour contrasting with almost any other. The flower is much smaller than *O. macrocarpa*, but many would think this a commendation. I find it most floriferous when the soil is somewhat dry, sandy, and "poorish," meaning not too much so. When the question now is constantly asked, What herbageous plants can I readily grow? I would like to say a word for the Evening Prim-

rose family, not the least desirable of which I consider this little favourite. The cheapness of many of those hardy annuals I am afraid makes them less appreciated than they deserve.—W. J. M., *Clonmel*.

THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY'S SUMMER SHOW.—JULY 7TH.

NOTWITHSTANDING the fact of the Council allocating the largest share of the prizes to their spring and autumn meetings, the Exhibition held in the Waverley Market, Edinburgh, on the above date compared favourably with the shows of those more highly favoured seasons. The vast market was quite as well filled as usual, the nurserymen of Edinburgh and neighbourhood helping greatly in the furnishing thereof. The Lawson Seed and Nursery Company had, as has been their practice at previous shows, quite a garden of several large beds formed at the west end of the building. Most of the beds were filled with dwarf Coniferæ and shrubs of a similar nature in pots, the large centre bed, however, being laid out in a gayer fashion and arranged altogether with much taste. Large Humeas, Palms, &c., were lightly dotted over the main portion of the bed, a groundwork being furnished with plants of a decorative size, consisting of Zonal Pelargoniums, Heliotropes, &c., a broad margin of the same class of plants finishing off the outer edges. The Messrs. Ireland and Thomson, Craigleith Nurseries, exhibited a table of decorative stove plants, such as the newer Crotons, Dracænas, Bertolonias, Marantas, &c., interspersed with Roses in pots, Begonias, and other flowering plants, also a number of fine cut Roses, a good collection of Delphiniums in variety, English Irises, and other hardy cut flowers. Mr. Robertson Munro of Piershill had a table as usual devoted entirely to new or rare hardy flowers. Noticeable were such as *Androsace chamaejasme*, *Asperula cynanchica*, the small *Campanula hederacea*, and *Pentstemon heterophylla*. Messrs. T. Methven & Sons, Leith Walk, furnished a large table mainly with a bright lot of the best decorative Pelargoniums and Begonias. Underneath, the front of the staging was filled with East Lothian Stocks and various Ferns intermixed, the whole being edged with a line of *Selaginella Kraussiana*. Close to these Messrs. Downie & Laird, West Coates, presented an arrangement which had for its back line a large display of fine Palms and Tree Ferns, the front being filled-in with a miscellaneous collection of ordinary decorative plants. Splendid collections of cut *Pyrethrum* blooms, Pansies, and Violas, with spikes of *Delphinium* in large variety, and some two or three dozen varieties of early-flowering *Phloxes*, added greatly to the general effect of this table. Somewhat similar and even more effective was the table of Messrs. Dickson and Co., Waterloo Place. The centre of this table had some tall well-grown Tree Ferns, in front of and underneath which choice stove and greenhouse plants were effectively arranged. All round the outer margin of the table were placed stands of such plants as *Mimulus* seedlings of a large and fine strain, seedling double *Potentillas* in great variety of colour, a large boxful of cutting Pinks, including such good sorts as Napoleon III., White Queen, Robusta, the common Pink, white Mule Pinks, &c., large collections of bedding Violas both seedlings and named sorts in all shades of possible colours, Show and Fancy Pansies, with cut blooms of English Iris, &c. But the unique table in the Exhibition was doubtless that furnished from the Royal Botanic Gardens, Inverleith Row. This consisted in the main of *Nepenthes*, *Droseras*, *Sarracénias*, and other insectivorous plants. Especially remarkable were *Nepenthes Hookeriana*, *N. Sedeni*, *N. zeylanica rubra*, *N. hybrida maculata*; *Sarracénias flava*, *purpurea*, *Chelsoni*, *Drummondii*, and *variolaris*; *Darlingtonia californica* with large seed pods; *Cephalotis follicularis*, and *Dionæa muscipula*; *Drosera spatulata* and *dichotoma*, both in flower; and the allied *Drosophyllum lusitanicum*. Amongst Orchids were various *Stanhopeas*, and a large panful of *Disa grandiflora* with sixteen spikes. There was also a good plant of the rare *Agave Victoria Regina*. Of *Trichomanes reniforme* and other filmy Ferns. New alpine plants were represented by *Gentiana ornata*, *Dianthus eximius*, a cross between *D. alpinus* and *D. deltoides*—a fine rock plant.

Turning now to the more prominent classes in the gardeners' section some large and well-flowered specimens were noted in the first-prize collections of stove and greenhouse plants exhibited by Mr. John Paterson, Millbank, his specimens of *Erica ventricosa alba*, *Aphelexis spectabilis*, and *Dracophyllum gracile* being especially large and fine. Mr. Paterson and Mr. J. Reed, Cannaan Bank, also staged good collections of foliage plants. The class for the best table of plants 20 feet by 5 feet was chiefly remarkable by the first-prize contribution of Mr. Spence, Oswald Road, containing a mass of *Cattleya Mossiæ* nearly 4 feet across, and having over fifty blooms open. The Orchids did not form a large display; Mr. McGregor, gardener to C. Walker, Esq., Braxfield, Lanark, taking the first prizes for one and two Orchids respectively with a large piece of *Odontoglossum Alexandræ* with three long spikes, and a six-spiked piece of the above, and a good example of *O. vexillarium*. For six exotic Ferns Mr. Paul, Gilmore Place, occupied the leading position with three grand and healthy *Gleichenias*, good plants of *Adiantum Flemingii* and

Williamsii, and a large plant of *Microlepia hirta cristata*. Many tables were bright with *Petunias*, *Gloxinias*, *Carnations*, &c.

Roses.—The centre of attraction was those staged by Mr. Hugh Dickson, Belfast, in the nurserymen's class for thirty-six and eighteen buds respectively, and for which he was awarded first prizes. The most noteworthy blooms in these stands were Constantin Tretiakoff, Pierre Canot, Paul Jamain, Marie Finger, Elie Morel, Marie Baumann, Duchesse de Vallombrosa, Prince of Wales, Antoine Ducher, François Michelon, Beauty of Waltham, La France, Duke of Wellington, Ovid, Carrière, and La Coquette (Hybrid Tea). In both classes Mr. Smith, Stranraer, occupied the second position with stands of very good blooms, but lacking the freshness and vigour of the Belfast champions. In the classes devoted to gardeners no noteworthy collections were staged, the Tea Roses being more especially deficient.

The Fruit classes were especially well filled as a rule, the number of bunches of Grapes staged being very much above the average of the summer shows. For a collection of six dishes of fruit, distinct, Mr. Johnston, gardener to Earl Strathmore, Glamis Castle, and Mr. McKelvie, gardener to the Duke of Roxburgh, Broxmouth Park, alone staged collections, the prizes going in the order named. Mr. Johnston's stands contained good Grapes, Melon, Brown Turkey Figs, large Sulhampstead Peaches, Elruge Nectarines, and Vicomtesse de Thury Strawberries. Mr. Boyd, gardener to W. Forbes, Esq., Callander Park, Falkirk, and Mr. McKinnon, gardener to Viscount Melville, Melville Castle, were first and second respectively for Black Hamburgs, both very fine; Mr. Boyd was also first with grand Muscat Hamburgs, for any other black Grapes Mr. McKinnon being second. The only good white Grapes were from Mr. Maconachie, The Gardens, Alexandria, the sort being Buckland Sweet-water, and extra fine. Mr. Boyd was deservedly awarded a special prize for four fine bunches of Grapes consisting of Black Hamburg, Pope's Hamburg, Frankenthal, and Muscat Hamburg. The best Peaches were from Mr. Johnston; the best Nectarines from Mr. McKelvie, very fine; the best Melon from Mr. R. P. Brotherston, gardener to the Earl of Haddington, Tynninghame; the best four dishes of Strawberries from Mr. J. Young, gardener to Earl of Breadalbane, Taymouth Castle; the best single dish from Mr. Corsac, Linlithgow; Mr. Anderson, gardener to Earl of Stair, Oxenford, being first for Figs.

Vegetables were largely represented, as many as nine collections being staged. The judging of these was not very satisfactory, Mr. G. Potter, gardener to W. Laidlay, Esq., Seacliff, being first with collection.

Certificates were granted to Mr. H. Dickson, Belfast, for *Begonia Dicksonii*; to Mr. Gray, Eglington Castle, for *Viola alba compacta*; to Mr. John Mackenzie for white *Petunia Countess of Rosebery*; and to Mr. John Wright, Prestonpans, for a seedling Gooseberry. Mr. Anderson, nurseryman, Meadowbank, had a special prize awarded for a small collection of Orchids, and Mr. Paul, Paisley, a similar award for a fine collection of cut Pinks.

NEW AND CHOICE PLANTS.—No. 2.

CONTINUING my remarks from page 354 of the last volume I select the following as especially worthy of notice:—

HIBISCUS SCHIZOPETALUS (Veitch).—This plant is regarded by the authorities as a variety of the well-known *H. rosa sinensis*, but it is so remarkably distinct in general appearance that few ordinary observers would consider it as so nearly related to that species. The flowers are pendulous on slender peduncles, the petals being deeply cut or lacinated somewhat in the style of the Clarkias. The united filaments of the stamens closely surround the style, and the latter projects about 2 inches beyond the corolla, terminating in five divisions. The colour of the petals is a brilliant orange red; and although the flowers, like those of other Hibiscuses, are of short duration, yet the plant is both attractive and interesting. It is a native of east tropical Africa, where it was found by the Rev. J. A. Lamb, from whom Messrs. Veitch obtained their plants. It was exhibited at one of the Royal Horticultural Society's meetings early in the present year, and was honoured with a first-class certificate. It requires similar culture to its congener. [For the engraving of this plant on the opposite page we are indebted to Messrs. Veitch.]

ANTHURIUM ANDREANUM (Linden).—On April the 13th last a specimen of this remarkable Anthurium from M. Linden's nursery, Ghent, was exhibited at the Royal Horticultural Society's meeting and attracted considerable attention, as it did when first exhibited at Ghent on the 4th of that month. Of a large genus it is undoubtedly one of the most distinct species, and while of great interest to the botanist it also deserves the attention of those who appreciate ornamental qualities more than mere peculiarities of structure. It is a native of Colombia, where M. André (after whom it is named) first discovered plants growing in an epiphytal manner on some Ficus in the State of Cauca. That was in 1876, and about forty plants were despatched to Europe, and in the following year further supplies of the plant were obtained and forwarded to France, these being secured by M. Linden in 1878. The chief peculiarity of the plants is in the spathes, which are

strangely puckered or corrugated; neither of those terms, however, adequately describing the appearance, and the botanical appellation, "bullated" referring to the inflated surface of a Savoy leaf is perhaps the most suited, except that the indentures are downwards instead of upwards. The colour is a brilliant scarlet shade with a slight tinge of orange, and of a singular shining appearance, as though the surface had been highly polished. The

spathes are large, some being 5 inches in length by 4 in width, and the spadices contrast very strikingly with the brilliant body colour, for they are white at the lower part and greenish yellow towards the apex. The plant is tufted in habit, with dark green narrow leaves, but is undoubtedly inferior to its ally *A. Schertzerianum* in floriferousness. This novelty has been advertised at twenty guineas a plant, but the two hundred specimens that Mr.



Fig. 12.—*HIBISCUS SCHIZOPETALUS*. (See page 46.)

F. C. Lehmann brought to England a short time since were sold at Messrs. Stevens' Auction Rooms, Covent Garden, and realised from two to seven guineas each, thus considerably reducing the original value. The culture that is likely to prove successful is indicated by the facts that the species inhabits an extremely warm and moist district even for the tropics, and is found growing both epiphytally and in damp positions among Mosses.

OLEOBACHIA PALUSTRIS (Williams).—This is an elegant plant, and will probably become popular for decorative purposes. It resembles some of the most graceful *Aralias* in habit and foliage, but nevertheless it possesses quite a distinct character of its own. The leaves consist of six or seven narrow leaflets arranged in a digitate manner, their colour being a rich dark green, with a midrib of a paler hue. It is of free growth, and may be successfully

grown with ordinary greenhouse plants—a considerable advantage, for being thus grown in a cool temperature it will endure much more exposure than the tender inhabitants of the stove.—R. L.

WEST KENT HORTICULTURAL SOCIETY.

JULY 10TH.

ONE of the largest and most attractive Exhibitions this prosperous and active Society has produced was held on Saturday last in Camden Park, Chislehurst, which was kindly placed at the disposal of the Society by N. W. J. Strode, Esq. A more interesting and beautiful situation for a flower show could scarcely be desired, and, as if determined to render the display worthy of its position and surroundings, exhibitors came forward in large numbers, contributing plants, flowers, fruit, and vegetables of excellent quality generally, and sufficient to fill four large marquees. The nurserymen's collections, as usual, constituted an important feature of the Show, for most of the chief metropolitan firms were represented by large and handsome groups of plants. Amateurs also exhibited plants numerous and well, a most satisfactory vigour and freshness marking their contributions. Fruit and vegetables were staged in good form, the latter being particularly noteworthy for their excellent condition. The majority of the eighty-seven classes enumerated in the schedule were represented by several collections in the divisions respectively devoted to any exhibitor, to amateurs of West Kent only, and to cottagers. This system of classifying the exhibits is both simple and complete, and far preferable to one adopted at an exhibition we recently attended, where about forty classes were arranged under no less than nine divisions, the qualifications of the exhibitors chiefly resting upon the distance of their residences from the town where the Show was held.

Stove and Greenhouse Plants.—These were fairly well shown by several exhibitors, but the competition was not very keen, nor were the specimens of great size, but neat and fresh. In the open class for twelve Messrs. B. Peed & Son, Norbury Nurseries, Lower Streat-ham, staged the best collection, comprising exceptionally handsome examples of *Lilium auratum* and *Allamanda grandiflora*. J. Scott, jun., Esq., Elmstead (gardener, Mr. J. Mumford), was second with much smaller plants, but in good condition. These were the only two entries with twelve specimens. The premier amateurs' six were from J. Burnaby-Atkins, Esq., Halstead Place, Sevenoaks (gardener, Mr. A. Gibson), and the collection was remarkable for including three *Allamandas*—namely, *A. Brearleyana*, *A. grandiflora*, and *A. Hendersoni*, all in vigorous health and well flowered. Mr. Arbuthnot, Budgen Place, Bexley (gardener, Mr. J. Mitchell), and Capt. Aylward, Crofton Court, Orpington (gardener, Mr. J. Archer), followed with fair plants, the former having a neat *Vinca alba*.

Pelargoniums were not very well represented, the plants being rather deficient in the number of flowers. G. Wythes, Esq., Bickley (gardener, Mr. J. Neighbour), was placed first in the open class for six Show varieties with healthy but small specimens; F. P. Alliston, Esq., Beckenham (gardener, Mr. E. Braybon), following with moderately good plants. Zonals were exhibited by J. Lover, Esq., Shirley Court, Shirley; Mr. Neighbour, and Mr. H. Coppin, The Rose Nursery, Shirley, Croydon, who obtained the prizes in the order named. Mr. Archer had the only collection of six Fancy varieties, and obtained the first prize for new specimens. Messrs. Coppin, Lover, and Neighbour were the exhibitors of six double varieties, the first named staging a fine example of Wonderful.

Tuberous Begonias constituted a brilliant display, several exhibitors staging good collections. Messrs. Neighbour, Braybon, and Mitchell were the prizetakers in the order named, all the plants being well grown and flowering profusely. Gloxinias were also shown in fine condition, the blooms large, the colours bright, and the foliage luxuriant. Mr. Neighbour; J. B. Alston, Esq., Fairfield, Bickley (gardener, Mr. G. Bridger); and G. Phillips, Esq., Elmhurst Lodge, Chislehurst (gardener, Mr. A. Saville) were the successful exhibitors. Achimenes were very neat and well flowered, the best specimens being from Mr. Neighbour, Mr. Bridger, and F. Heritage, Esq., Ladywood, Orpington (gardener, Mr. J. Kent). Fuchsias were shown by Mr. Mitchell, T. A. Mitchell, Esq., The Woodlands, Chislehurst (gardener, Mr. H. Cole), and Mr. Archer, who were awarded the prizes in that order for well-flowered plants of moderate size, an extra prize being awarded to Mr. Braybon.

Fine-foliaged Plants.—In the principal open class for nine distinct varieties and species Mr. Gibson won the chief prize for a handsome *Alocasia metallica*, a neat *A. Lowii*, and several fine *Crotons*, *Dracænas*, and *Palms*. The second and third positions were accorded to W. C. Pickersgill, Esq., Blendon Hall, Bexley (gardener, Mr. Moore), and Mr. Kent, both of whom contributed healthy specimens. There were three competitors in the amateurs' class for six plants—namely, Mr. Saville, Mr. Mitchell, and C. Boosey, Esq., The Pines, Bickley (gardener, Mr. W. Gammon), who gained the prizes with very well grown specimens. *Dracænas* were exhibited by A. Pearce, Esq., Tweedbank, Sevenoaks (gardener, Mr. Talmage), Mr. Gibson, and W. C. Pickersgill, Esq., Blendon Hall, Bexley (gardener, Mr. F. Moore), all the specimens being vigorous and symmetrical. Ornamental-foliaged Begonias were shown by W. Sentance, Esq., Merevale, Bickley (gardener, H. Sawyer), who obtained the chief prize with luxuriant plants bearing well-coloured foliage, Mr. Talmage and Mr. Saville following with nearly equally as good specimens. *Caladiums* were unusually fine both in size and colouring of the foliage,

Messrs. Gammon, Bridger, and Braybon being the successful exhibitors. Ferns were not very numerous, but fresh and healthy. Mr. Neighbour had the best six hardy varieties, being followed by J. Williams, Esq., Blackbrook, Bickley (gardener, Mr. Gearing), and Mr. Cole. Six exotic Ferns were contributed by Messrs. Neighbour, Mitchell, and Gearing staging collections of neat plants, the respective merits of which were recognised by awarding the prizes in the above order. Mr. Gibson had the best single specimen Fern—viz., *Gymnogramma Lancheana* of fair size and very luxuriant. Mr. Betts, Homewood, Bickley, and W. Palmer, Esq., Elmstead Court, Chislehurst (gardener, J. Field), followed, the former with *Adiantum cuneatum*, and the latter with *A. farleyense*. The chief exhibitors of *Selaginellas* were M. Yeatman, Esq., Widmore (gardener, Mr. J. Cooper), who was first with six neat specimens, and Messrs. Neighbour, Talmage, and Cooper.

Cut Flowers.—The principal of these were the Roses, to which several classes were devoted, and a fair display was produced by the numerous exhibits. The most important was the open class for forty-eight triplets, in which Messrs. George Bunyard & Co., Maidstone, were the only exhibitors, gaining the premier award with beautiful blooms of good substance and exceptionally fresh in colour. The same firm was first with twenty-four varieties, being followed by Messrs. J. Laing & Co., Forest Hill, and Mr. Coppin with neat collections. Mr. B. R. Cant's special prizes for twelve single blooms were obtained by T. Burnaby-Atkins, Esq., Rev. J. M. Fuller, The Vicarage, Bexley, and A. Mitchell, Esq., all of whom had fair blooms. Messrs. Bunyard, Laing, and Coppin also carried off the prizes for twelve blooms of one variety, the first and second with *Marie Baumann* (handsome), and the third with *Star of Waltham*. The chief prize-takers in the amateurs' classes were T. Burnaby-Atkins, Esq.; Captain Christy, Buckhurst Lodge, Westerham; W. C. Pickersgill, Esq.; the Rev. Fuller; Alexander Potter, Esq., Stoneycroft, Widmore; and Messrs. Talmage, Neighbour, and Cole. For a collection of twelve hardy perennials J. Whitehead, Esq., Southwood, Bickley (gardener, Mr. F. Maynard), was awarded the premier prize. Table decorations were admirably represented, several very tasteful arrangements being contributed.

Fruit.—This was well shown, the chief defect being the unripened condition of most of the Grapes. For a collection of six distinct fruits Mr. Neighbour was first with good examples of black and white Grapes, Peaches, Nectarines, and Melons; J. E. Lovibond, Esq., Start's Hill, Farnborough (gardener, Mr. Tucker), being second with fairly well ripened fruits. Messrs. Neighbour, Tucker, and Mitchell were the chief exhibitors of Grapes; while Strawberries were well shown by Messrs. Maynard, Gammon, and Cooper.

Vegetables were extremely fresh and clean, handsome collections being staged by Messrs. Neighbour, Rollison, and Moore, among many others. The cottagers' productions were also remarkably fine and numerous.

Miscellaneous Exhibits.—Extra prizes were deservedly awarded to the following exhibitors for groups and collections of plants. To Messrs. Veitch & Son, Chelsea, for a handsome group of Orchids and fine-foliage plants; the General Horticultural Company for an attractive and extensive group of *Crotons*, *Dracænas*, and similar plants; to Messrs. John Laing & Co. for a collection of Tuberous Begonias and fine-foliage plants; to Mr. B. S. Williams for an interesting collection of new and beautiful Orchids and stove plants; to Mr. H. Cannell, Swanley, Kent, for one of the most attractive groups in the Exhibition, consisting of *Colenses* and *Delphiniums* edged with Tuberous Begonias, Gloxinias, and Lobelias; to Mr. H. Coppin for a group of Tuberous Begonias; and to several other exhibitors.

The weather in the early part of the afternoon was very unfavourable, several heavy storms of rain occurring, but it eventually became clear and fine, a large number of persons attending the Exhibition.

CAMELLIAS AND AZALEAS.

OBSERVING that there are many inquiries from amateurs respecting these plants, a few brief practical notes may possibly be useful.

CAMELLIAS.—Those planted out and having set their buds must be kept both cooler and drier so as to prevent or lessen the tendency to second growth, as would be likely to result from keeping the house somewhat close and moist for the especial benefit of plants in pots or tubs. The latter in such case must be removed to a house where they can have the necessary treatment to finish their growth and the setting of the buds. This should always be kept in view, as if the buds become too forward for the time when their flowers are required no retarding will keep them back, and, on the other hand, if required early in the autumn they can only be had by corresponding early growth, and under conditions that will bring the flowers on gradually, forcing in the later stages invariably causing the buds to drop. Camellia blooms are now as much valued in autumn and early winter as they are at Christmas and after; indeed in many places they are expected from October to June inclusive, and they can be had with intelligent treatment.

AZALEAS.—Plants that were started early and which are desired to attain a large size as quickly as possible, will now be setting

their buds. These should be pinched out as soon as formed, not deferring it too long or the plants will make very little second growth, which should be encouraged by supplying heat and moisture liberally. The latest-flowered plants should be encouraged to make growth by keeping the house close and moist, and shading with some light material in bright weather only, the plants being kept near the glass and with as much light as they will bear, so as to secure good-textured leaves, which are more persistent than thin foliage. Red spider and thrips must be kept under, or they will soon destroy the appearance of the plants and interfere with the flowering.—G. P.

FLUTE BUDDING.

At this the season for budding Roses and fruit trees the mode represented in fig. 13 may appropriately be submitted. It is often practised in France, and possibly there may be some amateurs who would like to try it in this country. The little cut pretty well explains itself. The bud or scion A is placed on the stock B in place of the portion removed at C, the bud being secured in its position with matting or worsted in the usual manner, and is preferably covered with a mastic, but this is not essential. If the bud is larger than the stock a longitudinal slice will reduce it to the right size. In carrying out the process the work should be done clearly and expeditiously.



Fig. 13.

MAIDSTONE ROSE SHOW.

ALTHOUGH sundry hints had been thrown out that the Maidstone Rose Society was at the point of death, yet with so good a Secretary as Mr. Bensted, and so warm and generous a supporter of the Rose as Mr. Hollingworth, it was not to be expected that the Society which has had to record so many brilliant successes would be allowed to collapse, and this expectation was fulfilled. A considerable amount of energy was put forth, and as a result a most excellent Exhibition was held on Tuesday last the 6th inst. The Exhibition was held in the Concert-room, and attracted not only many good growers but also a considerable number of visitors. The challenge cup for amateurs was won for the third time by Mr. Burnaby-Atkins of Halstead Place, Sevenoaks, with eighteen blooms, he also obtaining the silver medal of the National Rose Society for the best box in the Show. The varieties shown were Etienne Levet, good; Capitaine Christy, Madame Charles Wood, very good; Baronne de Rothschild, Madame Caillat, Marie Baumann, very fine; Charles Lefebvre, good; Annie Wood, La France, a very fine bloom; Auguste Rigotard, Senateur Vaisse, very bright; Henri Ledechaux, Mons. Boncenne, excellent; Marquise de Castellane, Dr. Andry, Mons. E. Y. Teas, very good; and Duke of Edinburgh.

In the class for twelve some excellent stands were staged. Mr. W. Wakeley was first with very fine blooms of Capitaine Christy, Fisher Holmes, Cheshunt Hybrid, Marie Baumann, La France, Duke of Connaught, Thomas Mills, Lord Macaulay, President Grévy, Mdlle. Eugénie Verdier, and Camille Bernardin. The Rev. H. B. Biron ran very close with excellent blooms of Naomi, a very dark flower to which I have already alluded in my account of the Canterbury Show. Capitaine Christy, Xavier Olibo, a magnificent bloom which obtained the bronze medal of the National Rose Society as the best Rose in the Show; E. Y. Teas, Baroness Rothschild, Louis Van Houtte, La France, Marie Baumann, Reynolds Hole, Maréchal Vaillant, Fisher Holmes, and Madame Lacharme. In the class for six Lewis A. Killick, Esq., of Mount Pleasant, Langley, was first with Wilson Saunders, Monsieur Noman, Senateur Vaisse, Duke of Edinburgh, Baroness Rothschild, and John Stuart Mill—a stand of very neat blooms. In the class for twelve Teas or Noisettes Mr. Knight of Sittingbourne was first with Homère, President, Hippolyte Jamain, Marie Van Houtte, Catherine Mermet, &c. Mr. F. Warde was a good second. In the class for six Teas Mr. J. Wakeley of Rainham was first with good blooms of Madame Margottin, Madame Berard, Souvenir d'Elise, Jean Ducher, and M. Cecile Berthod. In the class for twelve blooms, six Teas and six Hybrid Perpetuals, Mr. Warde was first with some excellent blooms of Triomphe de Rennes, Duke of Edinburgh, Star of Waltham, Adrienne Christophle, Maréchal Niel, Robin Hood, Belle Lyonnaise, Madame Berard, Alfred Colomb, &c. In the class for six of any one variety Mr. Wakeley was first with excellent blooms of Alfred Colomb; Mr. J. Wakeley second with La France, very good; Mr. Burnaby-Atkins and the Rev. J. M. Fuller equal third with Etienne Levet and Maréchal Niel.

The borough Members gave a piece of plate as a challenge cup, to be competed for by ladies for a table decoration. This brought out a spirited competition, and the prize was won by Mrs. Biron with a tastefully arrayed stand, in which of course Roses predominated. The fault which marked the same lady's stand at Canterbury had been avoided—too much crowding, and hence her success. The other stands were well arrayed, one especially by Mrs. Killick would have stood a fair chance of taking first instead of third, but the base was

poor, the Roses employed being only buds. There were some excellent button-hole bouquets, the first prize being taken by Mrs. Bensted, the mother of the very excellent and energetic Secretary of the Society, to whom its members are so much indebted for the success of the Exhibition.—D., Deal.

P.S.—With regard to the Rose mentioned above as Naomi I send a letter I have received from the Rev. H. B. Biron who exhibited it:—"Mr. Bunyard of Ashford has satisfactorily cleared up the mystery of my Rose of uncertain name. In the year 1876 he purchased a Rose called Eugène Furst from Souper et Notting, which exactly answers to the description of Naomi. On his Rose book Naomi, an old pink Rose, stood No. 111. This Rose he ceased to cultivate, and put the new one (Eugène Furst) to Naomi's number. His foreman seeing the No. 111 gave me the name of Naomi with the Rose, and hence my error. The Rose Eugène Furst is described in the French catalogues as follows:—'Fl. tr. gr. pl. bien faite bombée, rouge cramoisie velouté; nuance de pourpre foncé; tres belle.' It threw very small blooms with me at first, but I was so pleased with the colour that I took great pains with it, and it improves yearly, and will I believe come to stand high on the Rose list. I am glad to know the real name. Perhaps the English nurserymen have the Rose; if not they ought to be made aware of its possible excellence."

HARDY FLOWER BORDERS.

THIS has been an unusually good year for gay flower borders with hardy plants; and as some of your correspondents seem at a loss what plants to use for permanently planting on showy borders, the recital of a few items culled from a pretty large practice here may possibly be of use, and is offered accordingly.

For early flowering, after the Crocuses, we rely upon Daisies, Aubrietias, Alyssums, and Cheiranthus, mostly in the front line of the borders, to be followed by Violas. *Doronicum caucasicum* is also a most useful early yellow, and should be largely used in every garden. The larger *Doronicums* come later, and are not so suitable, but are useful for cutting and for back borders. *Trollius europæus*, *T. asiaticus*, and other forms are very beautiful and last a long time in flower. With them can be associated the *Centaureas*, blue, white, and pink, but they are coarse growers, and should be freely cut back as they go out of flower. The next group of flowers still go with the Violas and self Pansies; we use Pinks of the old pink and white selfs very largely, and the old-fashioned mule Pinks. These alternating at every 3 or 4 yards with yellow Violas make a most gay margin, and when backed by clumps of purple and blue Violas and Pansies are very beautiful indeed. In the same bed we have *Pyrethrums*, single and double, red, white, and yellow; *Delphiniums*, both light and dark blue; *Aquilegias*, *Pæonies*, Sweet Williams, Rockets, and many other similar tall-growing flowers, and as these pass we rely upon Roses, *Phloxes*, *Pentstemons*, *Antirrhinums*, *Geums*, and the lovely *Anemone Honorine Jobert*. These flowers will produce a very complete succession throughout the early and late summer, and when bulbs are judiciously intermixed will form a lovely effect at all times. We employ bulbs largely, commencing with the *Daffodils*, *Narcissi*, and *Tulips*, followed by the English and other *Irises*, and later again by the *Lilliums* (English and Japanese), and the *Gladioli*, &c., to any extent. We also rely a good deal upon annuals for autumn bloom, as herbaceous plants are over by the middle of summer, and it is just at this time that annuals are at their best in this district.—BROCKHURST, *Didsbury*.

NEWCASTLE SUMMER SHOW.

JULY 7TH AND 8TH.

THE Botanical and Horticultural Society of Durham, Northumberland, and Newcastle-on-Tyne held their summer Show in the Leazes Park, Newcastle, on the above date—a place in many ways adapted for an exhibition of such extraordinary magnitude as the Newcastle Flower Show has now grown to. The hitherto almost unprecedented exertions of this Society has been more visible and striking in the present Exhibition than any other of its predecessors. The Committee have offered this year a much better schedule, including classes for groups of miscellaneous plants, which were the most striking features of the late Exhibition. In every class and department of the Show there was a marked improvement from that of last year or the year before, and it was considered by many as one of the best shows held in England this year.

Referring at once to the schedule, we commence with the classes which were open to all. In the chief class a silver cup value £12, and the Royal Horticultural Society's medal, were won by Mr. Cypher, nurseryman, Cheltenham, with some very fine examples of *Ixora Williamsii* 5 and 6 feet, and *regina*, both plants admirably flowered. *Allamandas nobilis* and *grandiflora* were excellent both in colour, size, and freshness of flower. Mr. Cypher had also an excellent *Erica tricolor*, a good *Dracophyllum gracile*, and a very large-spined *Anthurium Schertzerianum*. Mr. Tudgey, gardener to J. F. G. Williams, Esq., Henwick Grange, Worcester, was second with plants somewhat

inferior to the first, Mr. Tudgey having been already at most of the prominent exhibitions held this year; his best plants being *Anthurium Schertzerianum*, *Clorodendron Balfourianum*, *Allamanda Hendersoni*; *Erias ferruginea* and *Paxtoni*, the former being a magnificent plant. There were three lots; Mr. Noble, gardener to Theo. Fry, Esq., M.P., Woodburn, Darlington, being third. In the corresponding amateurs' class for six flowering plants Mr. E. W. Letts, gardener to the Earl of Zetland, Upleatham, was first with a very fine collection. He had *Ixora coccinea*, grand, massive in truss, and finely coloured; *Erica ferruginea* and *Bougainvillea glabra* being both extraordinary. Mr. Tudgey was again second; his *Anthurium Schertzerianum*, *Clorodendron Balfourianum*, and *Erica venosa* were the best. In this class there were five competitors.

For eight foliage plants Mr. Cypher took premier honours with fine examples of *Cordyline indivisa*, *Cycas intermedia*, and *Croton Disraeli* very fine. Mr. Niel Black, gardener to Mr. Pease, Southend, Darlington, was second with fine examples of *Croton Johannis* unusually well coloured, and *C. undulatum*. In the class for six foliage plants Mr. Letts was first with very fine examples of *Croton majesticus*, *C. Johannis*, and *Gleichenia rupestris* in splendid condition. This we believe is Mr. Letts's *début* as an exhibitor, and his attempt is very creditable to him. Mr. Tudgey was second with some good plants of *Croton Johannis*, *C. Andreanus*, and *Geonoma gracilis*. There were altogether five collections, none of which would have disgraced any exhibition.

For a group of plants the Society offered £10, space allowed being 20 by 10 feet. There were five entries, and as a new feature at Newcastle formed one of the most distinguished characteristics of the Show. Mr. W. Yule, gardener to W. Pease, Esq., South Pierremont, Darlington, was first with a very fine collection of plants, embracing Palms, Crotons, and flowering plants arranged with taste and judgment. Mr. W. R. Armstrong, nurseryman, Newcastle, was second with very good plants; his centre plant consisted of a huge *Stephanotis* on a large balloon trellis. Mr. Noble was third, his group containing some very fine plants, especially noticeable being a finely coloured specimen of *Croton Johannis*. This was backed up with several other fine plants, but towards the edge the arrangement was a little too heavy.

Pelargoniums for the time of year were in splendid condition, those shown by Mr. May being in prime condition, and by the northern growers were much admired; he had a very fine plant of *Gipsy*. Mr. Lazenby, nurseryman, York, following with another very good lot. In the amateurs' class Mr. Sanderson, gardener to W. H. Parker, Esq., The Elms, was first with fresh examples of *Beadsman*, *British Tar*, and *Wm. Bull*; Mr. Adams, Swallow, following. There were in this class four lots. In the open class for six Fancy varieties Messrs. May and Lazenby took premier honours with very fine plants. For six Zonal Pelargoniums Mr. Wm. Spoor, Swallow, was first; they were very creditable to him, and consisted of such useful varieties as *Mrs. Wm. Paul* and *Master Christine*.

Roses were the only weak feature of the Show. This fact is no doubt due to the circumstance that the Show is quite three weeks too early for the northern exhibitors. The prize of £6 for forty-eight Roses, not less than twenty-four varieties, only secured three entries; Messrs. Cranston & Co. of Hereford being an easy first with what were for the season considered fine blooms of *Exposition de Brie*, *Princess Beatrice*, *Marie Baumann*, *Mdlle. Eugénie Verdier*, *Général Jacqueminot* (splendid), *Baronne de Rothschild*, *Dupuy Jamain*, *Maréchal Niel*, *Madame Thérèse Levet*, *Madame Lacharme*, and *Charles Lefebvre*. For thirty-six Roses, not less than eighteen varieties, no first was awarded, Messrs. Cranston & Co. being placed second. For twelve yellows, R. Mack & Son, nurserymen, Catterick, Yorkshire, were awarded the first prize with some very good blooms. For twelve Roses, Tea-scented, they were also first. In the corresponding class for thirty-six Roses Messrs. Cranston & Co., Hereford, offered a ten-guinea challenge cup to be won twice in three years. T. Jowitt, Esq., The Old Weir, Hereford, was first with handsome blooms. For twenty-four Mr. Jowitt was also first. He had some very fine blooms which were fresh and good, and were much superior to the exhibits of his northern opponents.

Table Decorations.—These formed one of the great features of this Show. The Society offered £10 as the first prize for dinner-table decorations. There were four competitors, including the great International prizetaker, Mr. Cypher of Cheltenham, who had to succumb this time to a successful local exhibitor, Mr. M. Thompson, gardener to Lindsay Wood, Esq., South Hill. The arrangement of his centre-piece elicited from the Judges marked approval, his style being so light and elegant, with just sufficient coloured flowers to give the whole an artistic effect. The flowers he employed in the centre were, in the top of the stand, *Everlastings*, *Oneidiums*, *Water Lilies*, *Gloxinias*, *Ixoras*, and *Dipladenias*. These heavier flowers were placed towards the base. The base of the stand was margined with *Davallia Mooreana*, and the whole was effectively draped with *Lygodium scandens*. Mr. Cypher also had an excellent table, his centre being a fine plant of *Cocos Weddelliana* springing from a bed of *Selaginellas*, with two very well-arranged epergnes. Mr. Methven, gardener to E. Lange, Esq., Heathfield House, Gateshead, and Mrs. Gellender, florist, Grey Street, Newcastle, filled the remaining places with creditable tables. Table plants were also very good. Six lots were shown, Mr. Tudgey being first. Epergnes were very well arranged, Mr. Cypher being first, and Mr. Whiting, gardener to — Walker, Esq., The Shot Tower,

Newcastle. Hand, wedding, and buttonhole bouquets were also numerous. For six foliage plants there were seven competitors, Mr. Letts again securing premier honours. For six exotic Ferns he was also first too with noble specimens of *Davallia Mooreana* 7 feet across; *Cyathea dealbata*, *Dicksonia antarctica*, and *Gleichenia rupestris* (magnificent). Mr. Tudgey was a good second with *Davallia Mooreana* and *Gleichenia rupestris*. Mr. Noble won with six British Ferns, showing fresh plants of *Osmundas*, *Trichomanes*, and *Athyriums*.

Cut flowers of hardy and herbaceous plants were very fine, and many very beautiful varieties were represented. For twenty-four bunches of flowers there were ten entries, Mr. W. Yule being first with a pretty collection of *Delphiniums*, *Thalictrums*, *Spiræas*, *Lychnises*, *Lupins*, *Potentillas*, and *Alstromerias*. Mr. E. Larke, gardener to the Rev. Mr. Wheeler, Whitby Viarage, was second with a collection which contained some very fine Irises.

FRUIT.—This department has considerably developed since last year both in number of exhibits and quality of produce. For six dishes of fruit the Society offered £5 and the Royal Horticultural Society's bronze medal. There were five competitors; Mr. H. G. Clayton, gardener to J. Fielden, Esq., Grimston Park, Tadcaster, being first with a fine Queen Pine, Muscat of Alexandria and Black Hamburg Grapes, good Royal George Peaches, Eastnor Castle Melon, and President Strawberries, all of which were good. Mr. H. Mann, gardener to Mrs. R. D. Hornsby, St. Vincent's, Grantham, was second, his best dishes being Black Hamburg Grapes and Elruge Nectarines. Mr. J. Edmonds, gardener to the Duke of St. Albans, Bestwood Lodge, Nottingham, was third. For four dishes of fruit, Pines excluded, Mr. E. W. Letts took premier honours with Black Hamburg and Buckland Sweetwater Grapes, Peaches, and a fine Melon, neatly netted, called *Marcellus*. Mr. J. Clark, gardener to the Marquis of Ripon, Studley Royal, was second, staging good Black Hamburg and Golden Champion Grapes. For four bunches of Grapes Mr. Letts was first, there being eight competitors. For two bunches of white Grapes J. Mavin & Son, market gardeners, Whitby, were first; Mr. Hutchinson, gardener to — Hunter, Esq., J.P., Whickham Grange, amongst thirteen competitors, winning first with *Madresfield Court*, which were very fine. A number of Melons were shown, Mr. Yule winning with *William Tillery Melon*. There were ten dishes of Peaches, Mr. Edmonds winning with some noble examples of *Chancellor*. There were also ten dishes of Nectarines, Mr. H. J. Clayton, Mr. Edmonds, and Mr. J. R. Jowsey taking honours respectively. Figs, Cherries, and Strawberries were well shown by Messrs. Clark, Elsworth, and Clark, who took first in each class.

In concluding our remarks on the Show it will be interesting to state that there were admitted on both days 24,830 persons, of whom 19,363 paid at the gates, and 5017 were admitted by ticket. The total receipts at the gates were £678 19s. 8d., as against £519 16s. last year. There were 110 exhibitors, who forwarded 708 Rose blooms, 478 cut flowers, 150 table decorations, bouquets, 196 dishes of fruit, 20 epergnes, 155 specimen plants, 253 Ferns and *Ericas*, and 700 plants in groups, making a total of 3041, as against 1889 in the summer Show of 1879. The Exhibition was held in six large tents with their sides open, forming one large massive pavilion. Several leading nurserymen sent magnificent collections of every novelty of recent introduction, Messrs. Veitch of Chelsea and Williams of the Paradise Nurseries, London, contributing two collections which entirely filled one end of the pavilion. Messrs. J. Robson & Sons, Hexham, sent a fine collection of *Coniferae* and Alpine plants, as also did Mr. Wm. Fell of Hexham. Mr. W. H. Hilton sent some excellent hand-painted flower pots of unbreakable material. Mackenzie & Moncur, horticultural builders, of Edinburgh, exhibited one of their patent conservatories; and Messrs. Dinning & Cooke, hot-water engineers, Newcastle, exhibited their patent hot-water apparatus for heating hothouses, &c.

The Committee and officers in general deserve to be congratulated on the success of their Show, as they spared neither time nor labour to make it what it was—a fine Exhibition.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE thirty-seventh anniversary of this excellent institution was held at the "Albion," Aldersgate Street, on Wednesday evening the 7th inst. H.R.H. the Duke of Connaught presided, and among the company were H.S.H. the Duke of Teck; the Right Hon. Sir F. W. Truscott, Lord Mayor of London; Sir Trevor Lawrence, Bart.; Dr. Hogg; and Messrs. R. Marnock, H. Webb, G. F. Wilson, H. J. Veitch, A. Veitch, C. Lee, J. Lee, R. A. Osborn, J. Fraser, B. S. Williams, W. Bull, and many others. In proposing the toast, "Continued Success and Prosperity to the Gardeners' Royal Benevolent Institution," His Royal Highness referred to the objects of the Society, and commented on the progress which has been made since 1842, after the somewhat unfavourable period which followed the establishment of the Society in 1838 had been passed. He was happy to state that since that time 269 persons had been relieved, and the funds now amount to £12,000. After some further observations on the difficulties and disadvantages gardeners have to contend with, and commending the admirable management of the Society, His Royal Highness concluded by coupling the name of Mr. Robert Wrench with the toast above

indicated. Mr. Wrench the Treasurer responded appropriately, and the Lord Mayor then proposed the health of the Duke of Connaught. In acknowledging the toast His Royal Highness stated he had always taken great interest in horticulture, and it afforded him great pleasure to witness the products of the gardeners' skill as collected at exhibitions.

"The Secretary, Mr. Cutler," being proposed by the Chairman, that gentleman responded, and compared the dinners held at the commencement of the Society, when about £50 were collected, with the one held on that occasion, when the subscription was the largest ever received. His Royal Highness the Duke of Connaught had given them 300 guineas; Mr. H. J. Veitch 259 donors, or £269 2s. 6d.; twelve life members, £126; and 149 annual subscriptions, £158 18s., making a total of £554 0s. 6d.; and through Mr. Tate of Messrs. Brown & Tate, Manchester, they had received the sum of £110. The sum total of the subscriptions amounted to over £1400. The Chairman proposed "The Royal Horticultural Society" and "The Royal Botanic Society," to which the Duke of Teck and Sir Trevor Lawrence replied in appropriate terms. Other toasts were also given and responded to, and the meeting then terminated.



AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY held on Tuesday last, G. T. Clarke, Esq., V.P., in the chair, the following candidates were duly elected Fellows:—viz., Mrs. Firman, Francis Henry Hogg, Sidney Howard, Dr. F. Anson, Mrs. Keane, Robinson Kendal, Douglas Kingsford, Rev. H. Dalgety McCheane, J. B. Sharpe, Villiers Stuart, M.P., James Waddell, Charles Westendarp. The Rev. George Henslow afterwards delivered a most interesting lecture on the plants which were exhibited, and for a report of which we regret we have not space.

— THE usual monthly dinner of THE HORTICULTURAL CLUB took place on Tuesday last, when the following gentlemen were elected members—Sir Richard Wallace, Bart., M.P.; Messrs. C. H. Hawtrej, J. P. Hawtrej, E. P. Francis, and E. P. Wollaston.

— MR. T. RICHES of Lower Tooting has sent us umbels of the pretty and useful hardy bulbous plant, *BRODIAEA CONGESTA*. The flowers are of a clear purplish blue tint, and are borne in compact umbels, somewhat in the style of an *Allium*. It is quite hardy, and succeeds in any ordinary light garden soil, and continues in flower for a considerable time.

— IN the old Lily house at Kew a beautiful aquatic plant—namely, *JUSSIEA NATANS*, is now flowering freely. The blooms are large, of a bright yellow colour, and suggestive of some *Oenotheras* in shape and colour.

— "J. U." WRITES in very high terms of praise of the MELON WILLIAM TILLERY, which he considers to be a variety of great excellence in the form, colour, and flavour of the fruit.

— A CORRESPONDENT writes that "*PETROCOPTIS LAGASCÆANA* is one of the best alpine plants I know. It is remarkably floriferous, and continues in flower for a long time, how long I cannot yet say, as this is the first season I have grown it, and it is now as bright as it was six weeks ago. The flowers are rose colour."

— WE have received a very rich collection of spikes of *DELPHINIUMS* grown by Mr. Joseph L. Stevens of Grasmere, Byfleet, Surrey, which illustrate in a remarkable manner the beauty and decorative value of this genus of herbaceous plants. In some instances the flowers are intensely double, others are semi-double, but the great majority are single flowers. The latter are doubtless the most beautiful; the large spreading sepals being of almost every hue of blue, purple, and lilac, approaching

red, and shaded with two and occasionally three shades of colour. In some cases the petals are quite white, forming a clear bright eye in the centre of the flower, in others they too are striped and shaded. We can only say they are very beautiful.

— WE draw the attention of our readers to the fact that the EVENING FETE OF THE ROYAL HORTICULTURAL SOCIETY will be held on Wednesday next the 21st inst., when the Gardens at South Kensington will be illuminated from 8 until 12 P.M. The bands of the Royal Horse Guards (Blues), and the 2nd Life Guards will be in attendance, and should the weather prove favourable the gathering will no doubt prove an extremely brilliant one.

— WE learn from *Nature* that the COLLECTION OF MOSSES of the late Professor Schimper of Strasburg has been purchased by the Baroness Burdett Coutts, who has presented this valuable and well-known collection to the Royal Gardens, Kew.

— AS an example of the way in which WINDOW GARDENING is being encouraged in the great metropolis, we may state that the fourteenth summer Exhibition of a Society instituted for that purpose at Westminster was held last week, and proved very successful, except as regards the weather. The President of the Society is the Dean of Westminster; the patronage of the Duke and Duchess of Northumberland, the Earl and Countess of Pembroke, the Earl and Countess of Brownlow, and the Hon. Alfred Talbot being also generously accorded. Under such powerful support the Society may well be expected to obtain some good results. The prizes were delivered to the winners by the Earl of Shaftesbury.

— A CORRESPONDENT states that the annual Exhibition of the IPSWICH AND EAST OF ENGLAND HORTICULTURAL SOCIETY which was held last week in Christchurch Park, Ipswich, proved very successful as regards the number and quality of the exhibits, notwithstanding the unfavourable weather that prevailed. Plants were well shown, Messrs. J. Gilbert & Son of Ipswich being the principal prizetakers. Cut flowers, particularly Roses, were very good. The special prize for forty-eight distinct varieties offered by Admiral Sir G. N. Broke-Middleton, Bart., was gained by Mr. B. R. Cant, Colechester. Other winners in those classes were Mr. B. F. Cant, Colechester; Rev. H. A. Berners, Harkstead Rectory, Ipswich; Mr. G. L. Rushmore, gardener to Sir Charles Rowley, Tendring Hall, Stoke; and Mr. G. Palmer, gardener to T. H. Powell, Esq., Drinkstone Park, Bury St. Edmunds. Fruit was numerous and well shown, the principal exhibitors being Mr. T. Blair, gardener to Admiral Sir G. N. Broke-Middleton, Bart., Shrubland Park; Mr. W. Allan, gardener to Lord Suffield, Gunton Park, Norwich; and Mr. J. Mill, gardener to Lord Rendlesham, Rendlesham Hall.

— THERE is now a grand display of *NYMPHÆAS* IN THE OXFORD BOTANIC GARDEN, where the tropical aquatics generally are also in excellent condition. Among the species of *Nymphæas* especially noticeable are *N. Cyanea*, *N. odorata*, *N. devoniensis*, *N. Daubeniana*, and *N. Lotus rosea*; but many others are also well represented, for the Oxford collection is a remarkably fine one.

— IN the same house the charming *EICHORNIA AZUREA* is flowering most profusely, and thriving as well as could be desired. This plant, it will be remembered, flowered last year at the Regent's Park Botanic Gardens, whence it was distributed to both Kew and Oxford, and strangely enough the latter was the only place where they succeeded in preserving it through the winter.

— WE have received the following relative to the STRAWBERRY SEASON—"The produce of Strawberries, from what a few years ago was common waste land in the neighbourhood

of Sarisbury Green, has this year been as great and the cultivation as successful as in previous years. At Shirley Mr. G. Payne has some splendid Strawberry beds covering several acres of what, only a short time back, was little better than rough waste. By enterprise and industry he has been able to pick from these beds some hundreds of gallons of Strawberries daily during several weeks past. These have found a ready market in Southampton and London. It is said that something like twenty tons per day have been sent to London from Botley in the height of the season."

— THE attention of CHERRY GROWERS is invited by the Secretaries of the South Chiltern Cottagers' Horticultural Society—an association of a few villagers on the Chilterns—to the following notice. His Highness the Maharajah of Benares, being interested in the cultivation of the Cherry, has offered through one of his English friends resident in that part of the Chilterns some prizes for the encouragement of Cherry culture. These prizes are mainly limited to the locality; but one prize of £1 is offered for the two best dishes of Cherries of any description, thirty of each sort, without any restriction as to place of residence. The Committee would be very glad to receive for exhibition some good samples of this fruit, both because it would tend to improve the culture of Cherries in the district, and because it would be a gratification to them to report to the Maharajah that his offer had been responded to by persons outside the district. Growers who would not generally send to a local show are invited to do so, in appreciation of the kindly feeling towards Englishmen which this Indian Prince has ever shown in little as well as in great matters. The Show is at Woodcote House near Reading, on Wednesday July 21st. The Secretaries, Rev. C. J. Abney, Checkendon Rectory, near Reading, and Rev. H. G. Nird, Woodcote House near Reading, will gladly take charge of any parcel directed to either of them upon information by post. Entrance fee 1s. 6d., which may enable a second prize to be given.

— WE have received from Mr. Fox, Banbury, flowers of the NEW DWARF DOUBLE-FLOWERING TROPEOLUM HERMINE GRASSHOFF; the original plants having been received from Mons. Grashoff of Quedlingburg. The flowers are very double, with broader petals than the old double scarlet Tropæolum, and we think they are even brighter in colour. The plants of Hermine Grashoff are described as very dwarf, only reaching 12 to 15 inches in height, and bloom freely the whole of the winter months. This variety therefore promises to be of considerable value for decorative purposes, and affording brilliant flowers for cutting for vase decoration.

— A WARRINGTON correspondent writing to us on the WEATHER and ROSES states that he has not yet cut a good bloom, all being more or less blistered by bright sunshine suddenly following frequent showers. We have seen many blooms at the shows that have been similarly injured, but those that have been protected are unusually brilliant in colour.

— We are informed that the POTATO DISEASE is very bad in the low-lying parts of Essex, where heavy rains have prevailed and saturated the soil. The crops in the cottagers' gardens are the most affected, especially the Early Shaws. In small confined gardens the soil is generally richer than in open fields, and the growth is more succulent and crowded, hence the liability to injury of Potatoes grown under such conditions. We may add that we have already seen Scotch Champion, Magnum Bonum, and Grampian, so called "disease-proof" varieties, affected with the murrain.

— WE have received from Mr. Stephen Castle, manager, The Vineyards, West Lynn, Norfolk, some fine specimens of TOMATOES. A bunch of Suttons' Conqueror, a smooth medium-sized fruit of

excellent quality, with twenty fruits. This variety is very productive, Mr. Castle having cut bunches 6 lbs. in weight. He has also sent specimens of his seedling, one of which weighs 14½ ozs. It is rather corrugated, and its chief merit consists in its firm flesh and excellent quality. Those—and the number is increasing—who enjoy Tomatoes in a raw state will find this one of the best. The smaller fruits are smooth and of suitable size for placing on the table.

SCALDED GRAPES—RED SPIDER.

ONE of the most frequent causes of "scalding" when late Grapes and Muscats are undergoing the critical process of stoning, is the result of allowing the temperature to fall too low at night, and then neglecting to admit air early in the morning to disperse the moisture condensed on the fruit. The best preventive of scalding is a night temperature of 65° to 70°, and abundance of air by day, under which treatment the occurrence is rare even with such kinds as Lady Downe's, one of the most liable to it; indeed no economy is so false as not continuing the fires as an auxiliary to solar heat, so as to ripen the Grapes whilst there is plenty of light, and external circumstances admit of free ventilation. Red spider is unusually abundant this season. The best remedy is to paint the hot-water pipes with sulphur, and the best preventive plenty of nutriment both at the roots and in the atmosphere, affording copious waterings with liquid manure at the roots, and a moist atmosphere by frequently damping available surfaces, especially at closing time, with guano water, or sprinkling with guano in the house, and syringing over it. The ammonia given off by this is beneficial to the foliage and inimical to insect life.—AN OLD GROWER.

THE REV. W. F. RADCLYFFE.

I AM sure that there are no readers of the Journal (especially those who love the Rose) but will feel that both it and they have sustained an immense loss by the death of my dear old friend Mr. Radclyffe, and as far as I myself am concerned I cannot say how great a blank it has made. For upwards of twenty years we have enjoyed one another's friendship, we have had the same sympathies and tastes; and although we were separated far from one another, yet it made perhaps our meeting, which I always tried to arrange when practicable, the more enjoyable.

I have so often described his residence, so often written of himself, that I feel I have little now to add to those words I have already written; but yet I cannot allow him to pass away without adding one more tribute to his worth.

As a rosarian few equalled him in ardour and enthusiasm; none excelled him in his love for the Rose. He loved it, not as an exhibitor loves it, but for itself alone. He did in former years exhibit both provincially and in London, and was successful; but for the last fourteen or fifteen years his Roses were grown for his own special enjoyment, and that of his friends and neighbours, whom he was glad to admit to see his garden at all times. Fruit, too, he delighted to grow, and his Peach trees at Rushton were a marvel of beauty and culture. And yet he cared little for fruit itself. To send a dish of Strawberries to a sick neighbour, or baskets of his luscious Peaches to his friends, was a greater enjoyment to him than eating them himself. He liked to have the best of everything he grew, always saying that it took as little trouble to grow good things as indifferent ones; and hence—whether it was Potatoes, Peaches, or Roses—he would have nothing that he considered bad or indifferent. Of course his taste varied, as all tastes do; people were not always able to agree with them, but as a rule his judgment was sound.

I can add but little to my estimate, so often given of his character. He was, in a word, that highest type of man—a Christian gentleman; a gentleman by birth and in feeling, incapable of a mean or ungenerous action, open-hearted, and free-handed in every case of distress, and obeying strictly the mandate not to let his left hand know what his right did. Living a secluded life, and disliking society, he was no doubt in some respects peculiar, but in all respects to be honoured and loved. The friendship began with him at Rushton is now broken for ever here, to be renewed I hope in that better land whose flowers are undying and whose joys are unbroken. He has left but few like him, and all who knew him may well cherish his memory. He was seventy-five years of age.—D., Deal.

STRAWBERRY PAULINE.

THE truss of fruit represented in the annexed figure is shown as produced by a plant sent to us by Mr. George Paul of Cheshunt.

The other portions of the plant were removed so as to better show the strength of the footstalk of the variety, which, as will be seen, is remarkable; but the merit of this Strawberry consists in combining earliness and high quality with size and firmness. Mr. Paul informs us that it ripens at the same time as Black Prince and Vicomtesse Hericart de Thury, and is as prolific as the

last-named variety, and when the first dish of Pauline was gathered Laxton's Pioneer growing in the same row was only just colouring. Pauline was raised by Dr. Morère, and has been grown at Cheshunt for five or six years, and it is a little surprising that a variety so distinct has not become more widely known. The flower is also distinct by its bold shape, the fruit almost forming



Fig. 14.—STRAWBERRY PAULINE.

before the flower expands. Possibly in all soils this variety may not succeed so well as at Cheshunt, but judging from the fine example submitted to us we think it well worthy of trial in various districts. The following is the description of the fruit:—Fruit large, oblong, and corrugated; deep red, and with a large

number of small seeds strewed over the surface, and with a long glossy neck like the Old Pine. Flesh very solid, stained with red for some distance under the surface; briskly flavoured, sweet, and with a very high flavour of the Old Pine. The flavour is very rich, and a fruit left over from Saturday till Monday,

instead of decaying became shrivelled, firm, and delicious. A very excellent Strawberry. The footstalk unusually thick as well as the scape, and the plant very vigorous and a great bearer.

ROYAL HORTICULTURAL SOCIETY.

JULY 13TH.

THE Society's Meeting on Tuesday last was unusually large and interesting for this time of year, the Council-room being completely filled with plants, flowers, and fruit from a number of exhibitors. Tuberous Begonias were strongly represented; the other most noteworthy exhibits being the superb collection of Japanese Iris blooms from Messrs. J. Veitch & Sons, Chelsea, their Orchids and new plants, and the collection of Lettuces in the vestibule from Messrs. J. Carter and Co., High Holborn.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Fruit and vegetables were not quite so abundant as the plants and flowers, but several exhibitors staged collections deserving of notice. Mr. Lyon, gardener to Sir E. H. Scott, Sundridge Park, Bromley, Kent, exhibited dishes of fine Elruge Nectarines and Grosse Mignonne Peaches; the latter were very large, and a vote of thanks was accorded for them. Mr. Whitaker, gardener to Lord Crewe, sent dishes of Lord Napier Nectarines, for which a cultural commendation was awarded. The fruits were of good size and well ripened. From the Society's garden fruits of a hybrid Strawberry were sent, the hybrid being the result of a cross between *Fragaria lucida* and *F. carolina*. The fruits were rather small, but of a rich and peculiar flavour. It was characterised by the Committee as an interesting cross of good habit, abundant bearer, and novel flavour, but not of sufficient size or importance to merit a first-class certificate. Mr. Ward, Longford Castle Gardens, Salisbury, sent a seedling Melon, which was considered as a good ordinary Melon, but not superior to others in cultivation. Messrs. Bunyard & Co., Maidstone, sent small branches of Currants most profusely laden with fruits. The varieties were Ruby Castle, Early Red, and Baldwin's Black. A vote of thanks was accorded. Mr. Pearson, 5, Water Lane, Brixton, sent fruits of a seedling Strawberry, very large but not in good condition. Mr. Hinds, Canford Manor, Wimborne, sent a collection of vegetables, comprising very clean well-grown samples of Peas, Beans, Carrots, and Potatoes. The Committee signified their appreciation of the quality by awarding a cultural commendation. A bronze medal was awarded to Messrs. J. Carter and Co. for their great collection of Lettuces, which comprised over two hundred varieties, representing all the principal forms in cultivation.

FLORAL COMMITTEE.—Dr. Denny in the chair. This Committee had a large number of new and beautiful plants submitted to their attention, and that the exhibits possessed considerable merit may be judged from the number of first-class certificates awarded. Messrs. J. Veitch & Sons, Chelsea, had a fine group of Tuberous Begonias, Orchids, and new plants. Some of the most noticeable Begonias were the dwarf forms. Mrs. Arthur Potts with rich crimson flowers; B. Davis with neat bright scarlet flowers. Of the larger varieties Brilliant with enormous scarlet flowers; Le Géant, also with large blooms; Emperor, Monarch, the pretty white form Reine Blanche: several named seedlings, *Rosea grandiflora*, and Countess of Kingston Irises was also exhibited which were very greatly admired. The varieties were not of English origin, having all been introduced from Japan by Messrs. Veitch; the diversity and beauty of the colouring were most attractive. Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, sent a group of Orchids, among which was a grand specimen of *Grammatophyllum Ellisii*, with a raceme considerably over 2 feet in length and bearing nearly fifty of its peculiar brownish flowers with small yellowish spots; *Nanodes Medusæ* had several of its strange dull reddish-coloured flowers with large fringed labellums; the delicate and elegant *Ionopsis paniculata* was flowering freely; *Utricularia Endresii* also being represented by an attractive specimen. Cultural commendations were awarded for these plants. Mr. H. Coppin, Rose Nurseries, Shirley, Croydon, obtained a vote of thanks for a group of Tuberous Begonias, containing several well grown and finely flowered specimens, also four boxes of cut Roses fresh and good. Mr. H. Cannell, Swanley, Kent, had a large stand of Verbenas, a number of varieties being represented, many of considerable beauty. A medal was awarded. Captain Patton, Langford Place, Abbey Road, N. (gardener, Mr. Borthwick), sent a *Coleus* named Allan Chandler, with leaves of great size, crimson marked with maroon, and edged with yellow and green, very bright in colour, a good variety, but with some others also exhibited on this occasion it was not considered sufficiently distinct from the numerous forms in cultivation to merit a certificate. Messrs. Heath & Son, Exotic Nursery, Cheltenham, were accorded a vote of thanks for a plant of *Epidendrum elatum* bearing a fine panicle of flowers, the fragrance of which strongly resembles that of ripe Pears. Mr. C. J. Salter, gardener to G. Southgate, Esq., Selborne, Streatham, was accorded a vote of thanks for a basket of plants of *Phalænopsis grandiflora*, bearing a large number of fine flowers; one inflorescence had sixteen flowers, and others from eight to ten. Mr. Salter also sent a basket of *Oncidium*s of several species flowering freely. From the Society's garden were sent several of Lemoine's *Pelargonium*s, also a group of seedling Begonias of especial merit, the habit being good, the flowers

large and richly coloured. As arranged with pots of Mignonette the effect was very pleasing. Plants of *Gomphrena globosa nana* were also shown; as its name signifies, it differs from the ordinary form in the dwarf and compact habit. A vote of thanks was accorded to G. F. Wilson, F.R.S., Weybridge, for flowers of *Liliums*, including *L. pardalinum*, *L. californicum*, and a seedling. Messrs. Outbush and Son, Highgate, had a collection of Ivies in the vestibule comprising about fifty varieties, several of considerable beauty.

First-class certificates were awarded for the following plants:—To Mr. H. Coppin for a seedling *Tuberous Begonia Mrs. H. Coppin*, a very distinct variety, with very large yellow flowers of good form; the leaves were somewhat of the Pearcei type in colouring, but very large, some being about 10 or 12 inches in length. The habit was compact and good, and the variety appears one of great excellence. To Messrs. Veitch & Son for *Tuberous Begonia Rosea grandiflora*, a beautiful variety, with flowers of enormous size, about 4 to 5 inches in diameter, of neat form, and pale pink in colour, very distinct and attractive; *Cypripedium Morganianum*, a hybrid between *C. Stonei* and *C. Veitchi*, with narrow petals about 4 inches in length, spotted with dark purple, the sepals were of a light colour faintly striped with purple; *Tuberous Begonia Countess of Kingston*, of dwarf habit, with large well-formed flowers of a rich crimson tint. In the colour and symmetry of the flowers this fine variety could scarcely be surpassed. The following varieties of *Iris Kämpferi* were also deservedly certificated:—*Carnation*, very large flowers, peculiarly streaked with purple on a lighter ground; *Striata superba*, very neat symmetrical flowers with a pale lilac ground, marked with fine purple veins, and having purplish blue stigmas; *Imperial Wonder*, large circular flowers, spotted and streaked with white and two shades of purple; *Kosoburo San*, falls and standards broad and rounded, streaked and veined with purple on a light colour, very distinct and beautiful; *Delicata*, flowers of moderate size, semi-double, white in centre, lilac blue towards the margin, very chaste. To Mr. C. Turner, Slough, for *Rose Mrs. Harry Turner*, a Hybrid Perpetual with neat compact blooms of good substance and a surprising richness of colour. The shade was a deep rich crimson with a velvety sheen; very effective. *Picotée Clara Penson*, a light-edged variety of symmetrical form, full, pure white with a clear narrow margin of purple. To Mr. W. Bull for *Lilium canadense splendens*, a variety of this well-known species with a single neat flower of moderate size, the perianth divisions acute, reddish in colour, thickly spotted with black; very pretty and distinct. To Messrs. Outbush and Osborn for *Hedera maderiensis*, an Ivy with small leaves variegated with white. To Mr. R. Lewis, St. Austins, South Norwood, for *Coleus Sowteri*, a distinct and attractive variety with neatly formed leaves, rich crimson in the centre, and margined with an even band of yellow. To Mr. J. King for *Begonia Mary Steele*, a tuberous variety of the Pearcei type, very floriferous, of good compact habit and bearing circular flowers of a fine yellow tint. *Tuberous Begonia A. Hemsley* from the Society's gardens at Chiswick was also honoured with a certificate. It was exhibited as a "decorative variety," a term which was apparently intended to indicate the dwarf compact habit and floriferousness of the variety. The flowers were very freely produced, and of a fine pink hue. Messrs. W. Paul & Son, Waltham Cross, also obtained a first-class certificate for *Rose Pride of Waltham*, which is described in the report of the Alexandra Palace Rose Show.

SCIENTIFIC COMMITTEE.—Sir Joseph Hooker in the chair. Mr. W. G. Smith exhibited water-colour drawings of certain furnaces for smelting iron in Scotland, the volumes of smoke of which were destroying Conifers in the neighbourhood; a drawing of *Lilium giganteum* from Mr. Noble's nursery, Bagshot; and a fasciated peduncle of the Ox-eye Daisy, with three flower heads combined. Dr. Gilbert exhibited specimens of Bacteria and other organisms which are supposed to produce nitrification. Certain solutions containing nitrous acid were found to pass into nitric acid whenever the organisms were present, not otherwise. Dr. Masters reports that they consist of numerous micrococci, algæ growth and Bacteria. Dr. Masters exhibited a specimen of the rare *Simethis bicolor* from Bournemouth. Rev. A. Rawson for a fasciated branch of Ash from Bromley Common. Mr. MacLachlan exhibited a specimen of sugarcane from Queensland attacked by the larva (also exhibited) of some unknown moth, probably of the Pyrelidæ. It resembles the injury done to the canes in the West Indies, Mauritius, &c. The larva appears to bore into the stem just above the leaf insertion, the egg having been laid in the axil, hence the desirability of stripping off the lower leaves. He also exhibited a Tulip capsule with a supernumerary carpel adherent, but open with exposed seed. Mr. James (Norwood) exhibited a series of blossoms of *Oncidium Gardnerii*, showing no specific difference between that and *O. curtum*. The Rev. G. Henslow (Secretary) exhibited several Cabbage leaves with abnormal foliar appendages and pitchers from a field near Hitchin; also *Iberis amara*, and remarkably tall specimens of *Rhinanthus Crista galli* from a corn field at the same place.

PYRETHRUMS.—These are certain to become as popular, or perhaps more so, than Chrysanthemums. In two long broad borders 400 feet or more in length they are planted from 6 to 9 feet apart, large plants with dozens of blooms each, and the effect is very fine. And then what handfuls or basketfuls of cut flowers can be gathered from them! No doubt that in ten years'

time they will be general favourites. Their only failing is the lack of scent.—R. P. BROTHERSTON.

PEACH BLISTER.

MR. TAYLOR'S notes in the last issue of your last volume added one more proof to the thousand and one already in existence of how all-important the protection of glass is to ripen the annual growth of Peach trees. If it be correct that well-ripened wood ensures the safety of the foliage from north-east and south-east winds—and I by no means grant that it does—how are we to get the wood ripened upon open walls in a wet summer? If anyone will tell us that, or of a sure remedy for the blister, we shall be most grateful.

Last year I called attention to the fact of some varieties of Peaches being much more liable to suffer from blister than others, giving examples of trees in my own hands growing side by side under precisely similar conditions, some of which were quite crippled and stunted by blister, while others enjoyed a comparative immunity from it, the apparent cause being tissue sufficiently stout in the young foliage to withstand the attacks of cold blasts—growing quickly, and coming to full development without a blemish. Varieties possessing this valuable property are what we require for open walls, for, however delicious and fine may be the fruit of varieties having tender foliage, they are not to be depended upon for an annual supply of it without the protection of glass. Plant them by open walls, and for two or three years all may go well; they may have become flourishing trees laden with heavy crops of fruit, but a change will inevitably come over the scene. Cold ungenial springs will occur, blister will affect the foliage, much of the blossom will prove abortive, and the trees will present a crippled, stunted, half bare appearance till the full strong growth of kindly midsummer hides the ravages of fickle spring. This summer growth fills the wall space, but it will not be well ripened unless the autumn prove exceptionally warm and fine. Two precious months have been lost by the crippling of the spring growth. If this meant only a passing disfigurement of the trees it would be immaterial, but it too often involves the loss of the fruit crop in the following year.—EDWARD LUCKHURST.

ABUTILON INSIGNE.

A CORRESPONDENT informs us that he has received what he believes to be this plant under another name, and he assumes that others are in the same position as he is. The accompanying figure will enable anyone to identify the plant, which is distinct in the formation of its flowers from all other Abutilons, and is very handsome, with dark green persistent foliage. *A. insigne* (Handsome-flowered Abutilon) has branches clothed with dense down. The leaves are large, on long petioles, alternate, cordate, somewhat three-lobed, and coarsely serrated, palmate-seven-nerved, with reticulated veins. The flowers are about 2 inches in diameter, and grow in axillary racemes of three to seven flowers. The calyx is campanulate, with triangular acute lobes; the corolla consists of five obovate cuneate petals, crisped, and plicate with erose

margins; they are of a lively rose colour, with deep-coloured veins. The ground colour of the large petals is white, but that is almost entirely obliterated by the rich carmine veining or reticulation both without and within, but brightest on the upper side.

THE WEST OF ENGLAND ROSE SHOW.

HEREFORD, JULY 7TH.

THIS, the fourteenth annual Exhibition of the Society, was not quite equal to some former shows, notably that of last year; but, as was remarked of Mr. Baker's Roses at the Palace, so at Hereford, it is impossible to speak too highly of the wonderful colour, lifelike freshness, and smoothness of his blooms. This is a fact generally apparent in this great exhibitor's collection; his chief weakness lay in the great size of the majority of his blooms not being carried out through his collection—a specimen or two in a weak corner would crop up. Mr. Jowitt's blooms, on the contrary, were large, well sustained throughout, and quite as well set up as Mr. Baker's, but certainly lacking in colour and smoothness, and showing manifest signs of an unequal struggle with the elements, especially when called upon to bear the burden and heat of the day. Many of Mr. Jowitt's delicate blooms evidently had had the shelter of glass, or otherwise they could not have been staged in this high state of perfection.

Mr. Baker carried off the special prize, given by Mr. B. Cant (£5), for thirty-six varieties, with a superb collection. The second prize was taken by Mr. Jowitt with admirable blooms. In eighteen varieties, three trusses, Mr. Baker had to change places with Mr. Jowitt in order of merit, the latter carrying off first prize; but the Judges must have had some trouble to decide, so superb in colour, size, and shape were both collections. As in the previous class, Mr. Baker's Roses were superior in colour and freshness, and specimens of *J. S. Mill* and *Duchesse de Vallombrosa* were each faultless; while in Mr. Jowitt's winning collection the triple groups of *Marie Baumann* (a marvel of *embonpoint* symmetry)

and good old *John Hopper* (so fresh and bright) could not be surpassed. In twenty-four varieties Mr. Jowitt, Mr. Baker, and Mr. Arkwright were awarded the prizes in the order named. Grand blooms were staged in these collections especially in Mr. Jowitt's. In twelve varieties in a numerous class Mr. Jowitt was again first with a splendid large and level lot, Mr. R. Crossling second, and Mr. Baker third. Mr. Jowitt showed *H.P. Henri Ledechaux*, splendid; and Mr. R. Crossling *H.P. Pierre Notting*, grand in colour and substance. Messrs. Cranston's special prize for twelve blooms of any Rose was won by Mr. Jowitt with remarkable blooms of *H.P. François Michelin*; while a similar prize, offered for *Noisette Maréchal Niel*, failed to bring a single competitor. Three blooms of any English Rose not yet in commerce was won by Mr. Talbot, gardener to Mr. Arkwright, who staged two varieties, neither of which appeared sufficiently distinct to require any especial notice. In the class restricted to amateurs living in Herefordshire, twenty-four vars., single blooms, the first prize (the special gift of Mr. Arkwright), was gained by Miss Bulmer with fine well-coloured blooms; *J. Pulley*, Esq., M.P., second; Mr. A. G. Grant third, and Mr. J. G. Woodhouse fourth. In this division the competition was numerous and close in every class.

In the open class for twelve new Roses sent out in 1877, 1878, 1879, or 1880 Messrs. Curtis & Sanford gained the first prize. The exhibits in these classes were not up to the usual mark as regards quality and condition. The greatest acquisitions appeared to be *H.P. The Dean of Windsor* and *Barthelemy Joubert* in Messrs. Curtis & Co.'s collection,

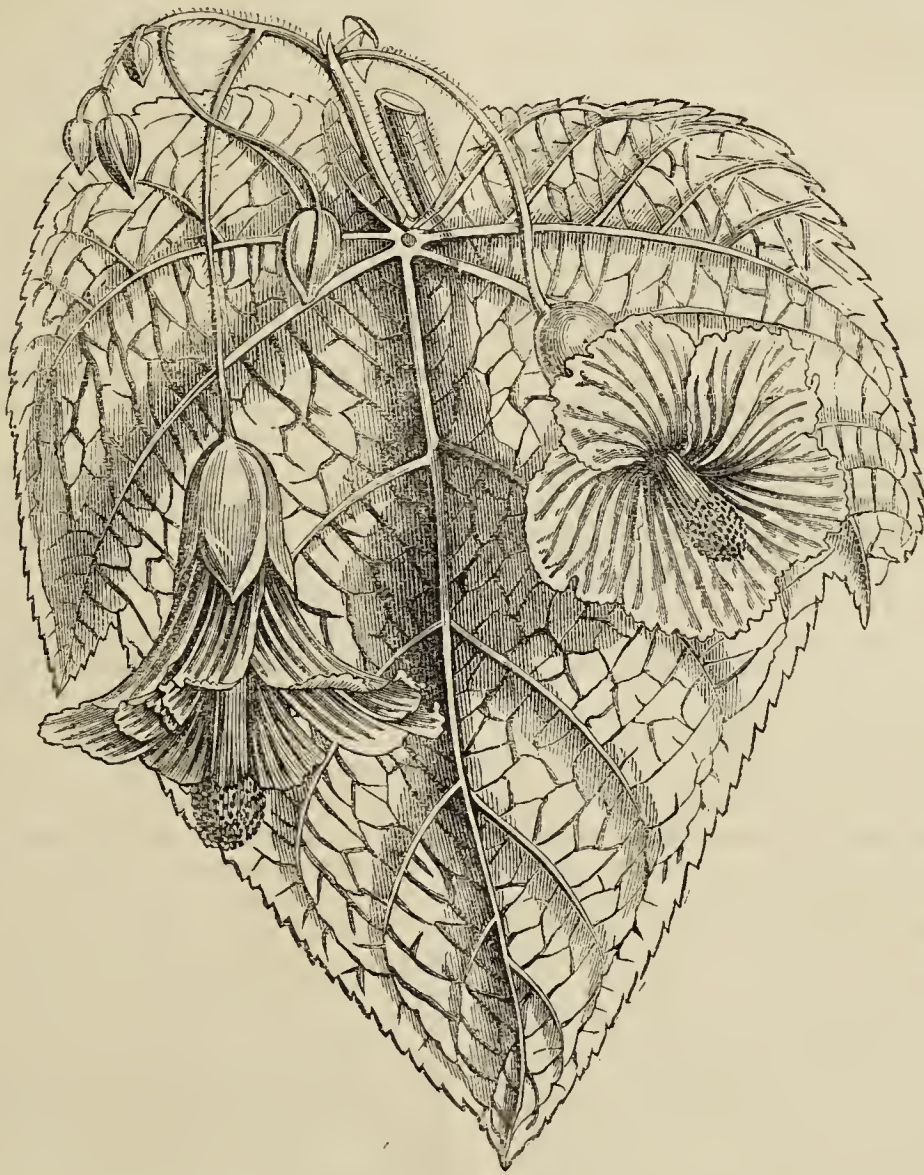


Fig. 15.—ABUTILON INSIGNE.

and Madame Gabriel Luizet (far the most promising variety) in Mr. Cranston's third-prize collection; the second prize falling to Messrs. Davison. The same remarks hold good in respect to the Tea and Noisette classes, in which Messrs. Davison & Co. took first prize; but where Messrs. Cant, Mitchell, and Prince are unable to exhibit, or not at all in their usual form, a temporary eclipse of this loveliest type of Rose must be expected.

Coming down last, but certainly not least in point of importance, to the nurserymen's division, Messrs. Cranston & Co., as a foregone conclusion from their former triumphs this season, carried off first honours with grand examples of the leading exhibition varieties. Messrs. Curtis & Sanford took second prize with a smaller but fresh and good collection. For thirty-six varieties, trebles, Messrs. Cranston were again first, and Messrs. Davison & Co. second. For twenty-four varieties, single trusses, Messrs. Cranston & Co. and Messrs. Davison and Co. were first and second in the order named. In eighteen varieties, trebles, Messrs. Jefferies & Son, Cirencester, gained first prize with a remarkably clean and fresh collection. The second and third prizes in this class were not awarded. In Class 24, varieties, single blooms, Mr. Griffiths, Tillington Nurseries, and Mr. Wm. Lee, Lyonsall, gained first and second prizes with admirable collections after very close competition.

It only remains to state that the floral decorations for which the Exhibition has attained considerable reputation were even on a larger scale than usual, and must have considerably taxed all the experience and talent which the Hon. and Rev. J. T. Boscawen (who acted as Judge in this division), is so well known to possess, in discriminating between their rival merits. Through the courtesy and efficiency of the hall manager, Mr. Beddoe, all arrangements seemed to give general satisfaction. There will be a new Honorary Secretary next year to the West of England Rose Show, but still an occasional reporter to our "Rose Journal" in the—HEREFORDSHIRE INCUMBENT.



KITCHEN GARDEN.

Early Cabbage.—A supply of Cabbage early in spring is of great importance. If the plants are too early there is danger of their running to seed in spring, hence the necessity of sowing so as to obviate this. From the 10th to the 16th of this month is quite safe for localities north of the Humber, but southward from the 16th to the 24th will be a suitable time for sowing. The seed should be sown rather thinly in an open situation, the object being to keep the plants sturdy and short in the stem from the commencement. Ellam's Early Dwarf is one of the best varieties, coming in very quickly; Hill's Dwarf Incomparable, Wheeler's Imperial, and Wheeler's Coconut are admirable early varieties, also Nonpareil Improved, Cattell's Reliance, and Enfield Market.

Cauliflowers.—Plants intended for yielding heads in autumn should be planted without delay, choosing an open situation and well-manured ground. Supply the plants freely with water, mulching the ground between the rows after the plants become established, and frequently water between the rows in dry weather, not only to increase the vigour of the plants but to prevent "buttoning."

Broccoli.—Plants of Veitch's Self-protecting Autumn and Snow's Winter Broccoli should be planted out at once, affording them if possible sheltered yet sunny situations. Heads may be obtained when those in exposed situations are damaged or destroyed. The present time is most suitable for planting out the main crops of spring and late Broccoli, which in most gardens make too robust and succulent growth, thus becoming more liable to be injured by frost than those grown in poorer soil. A loose soil also favours the tendency to excessive vigour; therefore in planting merely loosen the surface for the purpose of removing weeds, and before planting give a dressing of salt to ground where the crops suffer from ambury or club, half peck per rod being a sufficient dressing, or nitrate of soda 1 lb. per rod.

As ground becomes cleared of Potatoes, Peas, &c., plant Savoys, Borecoles, and Kales for a good supply of winter greens. Sow a good breadth of Turnips for late summer and autumn use, and continue successional sowings of Radishes, Round Spinach, and Lettuce. The main crop of Endive should now be sown; Round-leaved Batavian and Green Curled are suitable varieties, Picus being a very desirable finely curled or cut variety, with a large quantity of edible leaves which are readily blanched. Parsley which has been transplanted

endures the winter much better than that allowed to remain where it was sown, therefore transplant some where protection can be afforded in severe weather.

HARDY FRUIT GARDEN.

Continue to carry out former directions as regards the stopping or removal of superfluous or foreright shoots of all kinds of fruit trees, nailing or tying-in when trained to walls, so as to afford the advantage of increased sunshine and air to ripen the wood and buds. Figs on walls should have similar attention, the points of all shoots being pinched out except the leaders, and where the shoots are crowded they should be well thinned out. Vines trained to walls should have the growths closely nailed in, the laterals kept well pinched and superfluous growths removed, so as to afford the wood and fruit the fullest advantage of sun and air. Many outdoor fruits will now require to be protected by nets from the ravages of birds.

Strawberries.—Ground intended for new plantations should now be prepared by heavy manuring and deep trenching, or at least by being deeply dug. Preparation will also require to be made of plants for planting; and the best plan is to layer runners in small pots, selecting the runners from fruitful plants only, and by attention to watering in dry weather they will soon fill the pots with roots, when they should be planted out and attended to with water until established. If kept free from weeds and runners they will afford a crop of fruit next season, as full as plants allowed to root in the soil naturally will do in the second year; indeed the finest fruit will be had the season following planting, amply repaying the little extra trouble of layering in pots. In light soils the Strawberry should be treated as a biennial or at most as a triennial crop, whilst in heavy soil the plants have longer staying power, and will continue in bearing. The plants may be placed 15 inches asunder in rows 30 to 36 inches apart, which will be sufficient space the first season and ensure a fuller crop. But as soon as the fruit is gathered every alternate plant should be removed, which will leave them 30 inches asunder every way, more and finer fruit being had than by overcrowding. Pioneer, Vicomtesse Hericart de Thury, President, Sir Joseph Paxton, Lucas, Loxford Hall Seedling, Eureka, Dr. Hogg, and Unser Fritz are reliable varieties.

PLANT HOUSES.

Orchids.—Thunia Bensoniæ and T. albus come into flower about this time, and are valuable when many are on the wane. They should be in every collection, and are of easy culture, needing much the same treatment during growth as Calanthes. Supply the latter with weak liquid manure, also Limatodes rosea; and as they are subject to attacks of red spider, thrips, and scale, sponge the leaves with soapy water and afterwards with clean rain water. Cattleyas and Lælias in growth require plenty of moisture to enable them to make strong, plump, pseudo-bulbs. Many of the early-growing Orchids will have completed their growths for the season, and will require to be removed to a cooler house, where they can have more air and light, and a temperature of about 60° without sun heat. Dendrobium nobile, D. Cambridgeanum, with others of the genus, if retained in their growing quarters, will often make a second growth, which seldom becomes well matured; therefore place them in a house with less moisture and heat, ventilating freely. Keep the Odontoglossum house cool and moist, affording plenty of water to the roots of those growing freely. Odontoglossums and Masdevallias growing strongly and having filled their pots with roots should now have a shift. Sobralias being subject to red spider should be freely syringed and the leaves sponged. Frequent fumigation will be necessary to keep down aphides and thrips.

Greenhouse.—In hot weather hardwooded plants will require very considerable and careful attention in watering. Plants in vigorous growth and having abundance of roots may not show any indication of requiring water in the morning, but they should be examined before the usual time of watering in the afternoon, and be supplied as needed. Mischief is often done by permitting a plant to flag and then saturating the soil. In an hour or two the plant will freshen up and may appear all right, but in a week or two it will begin to flag at the points when exposed to the full sun, and this time it is not by want of water, for the soil is found wet enough, and if the plant is turned out many of the roots will be found dead. It is the heavy first watering after becoming dry that is the cause of this,

and which a more judicious application would have prevented. When a plant, therefore, is found dry in the middle of the day it should at once be shaded, the atmosphere around thoroughly moistened by copious applications of water, damping the outside of the pot repeatedly until it becomes thoroughly wet, slightly damping overhead to prevent evaporation; and when the plant is recovering, as it will towards evening, afford water thoroughly to the roots. This may be the means of saving many fine specimens. Another evil in watering at this season is the supply from cisterns being exhausted; spring water is employed not only several degrees lower in temperature but very hard. To prevent the injurious effects of well water to hardwooded plants it should be fully exposed to the air for several days before use.

Pelargoniums.—Early-flowered plants are very valuable, such as Bridal Bouquet and Duchess of Bedford, both being very chaste, pure white, prettily fringed with feathered rose spot in the upper petals. They should be placed outdoors in the full sun without delay to thoroughly ripen their wood previously to being cut down, affording water only to prevent flagging. The Regal varieties are particularly valuable for bouquets and decorative purposes. Some of the best are Princess of Wales; Maid of Kent, with rose spots on all the petals; Prince of Teck, Queen Victoria, Captain Raikes, and Beauty of Oxtou.

Liliums.—Plants of *L. auratum* coming on for later flowering should be top-dressed with decayed manure, and have careful attention in watering and securing to stakes, or they will be liable to be damaged by strong winds. Plants that have flowered should be placed outdoors and properly attended to with water, as the longer they retain the foliage the stronger the bulbs will be, on which so much depends for next season's flowering. *L. speciosum* vars. should have weak liquid manure occasionally, and must be kept free from aphides, which if allowed to increase completely spoils both flowers and foliage.

Heaths.—Early-flowering plants should be placed outside, and should have slight shade for a few hours in the hottest part of the day. Place the pots on a bed of ashes at least 6 inches thick, which should always be kept moist, as when the plants are on inverted pots they from drought become brown in leaf and have a starved appearance. Sometimes red spider attacks the plants, and in this case lay them on their sides and syringe thoroughly with clean water about twice a week.

TRADE CATALOGUE RECEIVED.

E. H. Krelage & Son, Keinen, Hartweg, Haarlem.—*Wholesale Catalogue of Bulbous and Tuberous-rooted Plants.*



Books (*A New Subscriber*).—We know of no treatise such as you appear to require. You will find an excellent mode of destroying the Gooseberry caterpillar on page 454, the issue of June 10th; and you may readily destroy aphides on Roses and Asters by syringing them with a solution of soft soap and tobacco water, 2 ozs. of the former and half a pint of the latter to a gallon of water. Gishurst compound has the same effect, as also have other insecticides that are advertised in the Journal. It is a great mistake to permit insects to increase in large numbers before adopting means of destroying them. Those who act on this principle never become successful cultivators. We will readily give you information on any question that perplexes you if you will state the case clearly and explicitly. (*W. N. Craig*).—Lowe's "Natural History of British Grasses," with seventy-two coloured plates, may possibly suit you. It is published by Groombridge & Son, price one guinea. Your other question shall have our attention.

Mimulus (*T. W.*).—The flowers having been sent in a letter instead of a small box were crushed into a shapeless mass, so that it is quite impossible to determine the merit of the variety. We may inform you, however, that hose-in-hose varieties of *Mimulus* are quite common.

Peculiar Fern (*L. Blacky*).—The frond you sent is very distinct from *Adiantum gracillimum* in general appearance and form, but the pinnules are similar to those of that Fern. It is probably a form of *A. gracillimum*. The frond is bunched or fastigate, and if all are alike upon the plant you mention the effect must be very peculiar.

Seedling Viola (*J. M. Freeman*).—The flowers are very rich in colour, velvety purple, and as the plant is floriferous and a continuous bloomer the variety is likely to prove an acquisition for bedding and border decoration. We

advise you to exhibit flowering plants at some of the Scottish Pansy shows, as it is only by judging it in comparison with the best varieties its merits can be satisfactorily determined.

Thrips on Vines (*W. A. B.*).—Frequent light fumigations will not injure the Grapes that have just stoned, and if persisted in will probably eradicate the insects. We have often greatly checked their increase by dipping a sponge in a strong solution of softsoap and smearing the affected leaves, not syringing the Vines afterwards. An hour or two spent during the early morning in sponging the leaves would probably in your case be labour well invested. At what strength did you apply the paraffin to the Vine in the pot for extirpating ants?

Heating a Stove (*E. W., Maidenhead*).—You do not state the height of the stove, but only give its length and width. Unless the house is very lofty four rows of 4-inch pipes and sufficient boiler power will heat it efficiently. It is contrary to our practice, as we have often stated, to recommend boilers. All that are advertised in our columns are good when well managed, but all are not equally adapted to certain positions. Consult a practical gardener in your neighbourhood on this subject.

Onion Maggot (*W. Jones*).—As your Onions are "seriously affected" we know of nothing that will kill the maggot without also destroying the plants. If any of our readers can name a remedy we will gladly publish it.

Stopping Peach Trees (*Subscriber*).—Train in all the growths that are necessary for forming the trees, and do not stop them, but be sure they are not crowded. The foliage of one shoot should not overlap that of the other, therefore you must remove all the growths requisite for exposing fully to the light those remaining. The side growths for bearing next year must also be trained very thinly, and if they have formed triple buds the ends of the shoots may be pinched off in August at about 18 inches from the base. Strong growths do not always form triple buds near the base, but only towards the extremities, and therefore stopping must not be done indiscriminately. You do not say whether the trees are on open walls or under glass.

Pelargonium Beauty of Oxtou, "Sport" (*Florist*).—The truss is large and the flowers possess good substance. They are darker than the original, not possessing so much white in the centre nor round the margin of the petals. It is distinct, and like the original form will be useful for decorative purposes, but we do not think it likely to be of any great commercial value.

Propagating Tuberous Begonias (*C. L. C.*).—They strike readily from cuttings inserted in sand in a good bottom heat, choosing such shoots that have not a disposition to flower freely, indeed cuttings are best inserted before the flowering period. Cuttings struck now will not produce fine plants this year, but will form tubers that will produce good flowering plants next season.

Roses from Cuttings (*Idem*).—As the plants grow vigorously and yet do not bloom we conclude they have been pruned too closely. Roses on their own roots if they grow freely will, if rightly pruned, flower as freely as plants that are budded or grafted on other stocks. Thin-out the growths if crowded now, and only slightly shorten the others at the winter pruning, and your plants will flower next year.

Peach Trees Unhealthy (*H. E. C.*).—Had you sent us some wood as well as leaves we should have been in a better position to judge of the condition of your trees. The leaves indicate that the wood is ripening prematurely; if this is so the trees have not had sufficient water. They appear also to have been injured by the red spider, but there are no insects on the leaves sent. Have the trees been dressed with a strong insecticide, and so received injury? Examine the border, not on the surface merely, but 2 feet below, and possibly you will find it dry; if so, water it thoroughly, syringing the trees frequently, and if the crop is very heavy remove a portion of the fruit.

Beetles Eating Strawberries (*E. D.*).—The beetle sent is *Omascus melanarius*, a predaceous species, which preys upon other insects and small snails or slugs; it is therefore probable that these beetles have swept away the real cause of the mischief done to the Strawberries. Failing a supply of their natural food the beetles might possibly attack a juicy vegetable substance, but we cannot on research find any recorded instance of such an eccentricity.

Nicotine Soap (*R. A. J.*).—Mr. Abbey—in reply to the questions "Does nicotine soap injure plants if it gets to their roots? and does it stain the paint? Is it safe to syringe a conservatory with?"—states that he has used it extensively both for plants and fruit trees, and has not found any injurious effects result from syringing with a garden engine to either the foliage or roots. It does not stain the paint, at least not white paint, although it would probably leave a stain on other coloured paints, as it from being a soap dries white, similar to softsoap solutions, and it leaves a stain on glass. It is perfectly safe for syringing a conservatory, as the after syringings with clear water will remove its remains, and glass should have a thorough cleansing every now and again. The insecticide does not injure the plants, whilst it destroys every kind of insect infesting them. Clay's fertiliser is not inodorous, but the soil absorbs it so thoroughly that there is no unpleasant smell in ten minutes after the manure has been applied. Florvita is slightly fragrant. Both judiciously used are good for plants.

Eulalia japonica (*Idem*).—Messrs. Veitch give the following description of this plant, which we believe is quite correct:—"A very handsome perfectly hardy ornamental Grass. The stems, which attain a height of 5 feet and upwards, are somewhat slender; they are furnished with leaves upwards of a yard long and nearly an inch wide at the broadest, striped throughout with bands and lines of creamy white alternating with deep green. The flowers are pink, and are produced in panicles with spikelets from 8 to 10 inches long. The established plant sends up a tuft of graceful stems very elegant in growth, and at first sight appears to resemble the variegated *Arundo donax*, but it is quite distinct from and more hardy than that plant."

Vines Unsatisfactory (*C. L. C.*).—Many besides yourself have to complain of the bunches being small at the "bottom of the house," and the evil is generally caused by not shortening the canes sufficiently when the Vines are in a young state, cropping too heavily and restricting the lower laterals too severely. Many people, and amongst them some gardeners, suppose that by stopping those laterals that are weak they adopt the best means of strengthening them, whereas the very reverse is the case. Weakly laterals should be allowed to grow unchecked, or at least so far as can be done without causing the growth to be overcrowded, while those above them that are strong should be closely pinched. Further, the spurs and growths are mostly much too close together on the lower parts of Vines. A foot apart should be the minimum distance, and a space of 18 inches for each lateral is much better. You must not allow any bunches to remain on the weak laterals; thin them out if crowded, and permit the others to extend freely. Denuding the stems of all growth as is sometimes done, and too closely pinching the lower laterals, are the causes of many failures in Grape culture. If your Vines require a stimulant spread an ounce of guano on

each square yard of the border and water it well in, then cover the surface with rich manure; it may be placed 4 or 5 inches thick, and should not be raked off again but be left to decay and form part of the border. Surface roots should be encouraged, they are essential to short-jointed wood and fine fruit; but such roots are not promoted by covering Vine borders in winter and exposing the surface to the heat of summer, as if heat and drought would attract the roots upwards instead of, what is really the case, driving them downwards, a fact that many who attempt to grow Grapes do not appear to be acquainted with, or if they are they do not turn their knowledge to account so much as is desirable. Knowledge, it should be remembered, if not applied to a given object is just equal to ignorance. These remarks are called for by the condition of many Vines that come under our notice, and that we wish to see better, but as we have not seen your Vines our general observations necessarily do not apply to yourself.

Name of Fruits (W. Warren).—It is the Hantbois. (D. E.).—1, Jargonelle Pear; 2, Sorry we cannot name it in this condition; 3, Early Margaret Apple. Thanks for your flattering opinion of the Journal in its new form; we have had many similar expressions during the week. (A Subscriber).—The three Raspberries were completely smashed in coming through the post, and past recognition. The best sort of white Raspberry is the Yellow Antwerp.

Names of Plants (Mrs. Wollocombe).—The yellow flower is *Diplacus glutinosus*, the other *Lychnis coronaria*. (John Bamber).—*Viburnum Opulus*. (Staines).—3, *Geranium pratense*. The others were too crushed to be recognisable. (W. H. Myers).—1, *Campanula carpatia alba plena*; 2, *Lilium Martagon*; 3, *Fuchsia microphylla*; 4, *Potentilla argentea*; 5, Too withered to determine with certainty, apparently an *Oenothera*. Of the specimens received last week the one with fleshy leaves is *Sedum pulchellum*, that with coloured foliage is *Agalmiyla staminea*.



POULTRY, PIGEON, AND BEE CHRONICLE.

THE ROYAL COUNTIES (HANTS AND BERKS) AGRICULTURAL SHOW.

(Continued from page 38.)

IN continuation of our report we will take the cattle; Short-horns first. For the best Shorthorned bull the first prize was awarded to Col. R. Loyd-Lindsay. This animal, three years and six months old, is well grown, with good points and of great weight for age, and of rare quality. The second prize was taken by Mr. John Walter of Wokingham for a huge animal, a mere mountain of flesh as regards size and weight; his age is, however, five years and three weeks, and when well bred, as this bull is, its enormous size gives it a noble appearance. The reserve number was given to Mr. Frederick Stratton, Merdon, Hursley, Winchester, for a capital animal of large size, his age being three years and three months, and bred by Mr. Joseph Stratton of Marlborough, and is of full pedigree. The formation or contour of this animal indicates his belonging to a generation of great milkers, but being rather light behind the shoulders has placed him third on the list, therefore in case he is used in a milking herd he has actually a value neither of the prize animals can claim for surety. For the best bull under three years old the chief prize was awarded to Col. Loyd-Lindsay for an animal only two years, seven months, and two weeks old. This is certainly as grand an animal, or more so, than any male Shorthorn exhibited, considering his age; and well adapted for use in a herd where exhibition animals are reared as a rule. For the best bull under two years old, five entries.—There was a very striking competition in this class taken altogether, and not one plain animal amongst them. Again Col. Loyd-Lindsay took the first prize with a splendid specimen of the breed only one year and seven months old, and we have no fault to find in this award. The second prize was given to Mr. C. Chapman, Frocester Court, Stonehouse, and to be placed second in such company is a great credit to the owner and breeder of this animal, which is only one year and ten months old, and is of full pedigree.

For the best bull calf above six months, and not exceeding twelve months of age; six entries.—First prize Mr. W. Nicholson, M.P., Basing Park, Alton, Hants. This was a beautiful animal, of rare outline and quality of flesh, and skin covered with soft

mossy hair, and being only seven months and two days old was also a great weight for age. The second prize—obtained by Mr. G. Garne, Chipping Norton—was for a calf ten months old. He was well bred, and being of great size for his age certainly looked older. This animal is of full pedigree, and is stated to be descended from the Butterfly tribe, and we well remember the celebrated bull (Master Butterfly) exhibited by Col. Townley at the Royal Meeting held at Canterbury in 1856, which was certainly the finest bull in all respects we have ever seen. This class, as a whole, was much to be commended. A calf in this class was exhibited by Her Majesty the Queen from the Show Farm, Windsor, but was not placed. We thought it was well bred, but not so well fed as some other exhibits. Class 32, for the best Shorthorned cow in calf or in milk; nine entries. The three prizes given in this class were well competed for, Mr. G. Garne taking the first prize with a remarkably fine animal in blooming condition, and is stated to be descended from Royal Butterfly, which tribe we have just stated stands high in our estimation. The second and third prizes were taken by Mr. Walter and Mr. Nicholson respectively with very fine animals; but we should not call them first-rate milkers. As the Society's conditions of the prizes does not oblige the Judges to award upon the milking capacity of the animals, the animals receiving these prizes were fully entitled to them. There were three commendations in this class irrespective of the reserved number; amongst the former was a very fine cow of full pedigree exhibited by Her Majesty the Queen, and bred upon the Show Farm at Windsor. Mr. F. Stratton showed a large well-bred cow, which was commended, and looked more like a good milker than any animal in this class; but we thought that it did not look so glossy in the coat as some of those beside her. This may probably arise from causes which are sure to tell against the appearance of exhibition stock, such as feeding only in the pastures without housing, for in our own practice we always box-feed exhibition stock; but it was altogether a fine animal, and, as stated in the catalogue, bred by Mr. B. St. John Aekers, of Brinknash Park, Gloucester, whose herd is of full pedigree and of long-standing celebrity. We could not help remarking that this cow in her form was exceedingly wide over the loin and hips, but rather narrow behind the shoulders, and that this illustrates practically the difference between deep milkers and animals of correct form, because, when outline is the chief guide in the selection and breeding of Shorthorns, the milking capacity is frequently only a secondary consideration.

For the best Shorthorned heifer under three years old; two entries.—First prize to Mr. W. Nicholson, the second prize to Her Majesty the Queen. Both animals exhibited in this class were remarkable specimens of the breed, and it was a credit to Mr. Nicholson to obtain first prize against such a good animal as that shown by Her Majesty. Classes 34 and 35, for which prizes were offered for heifers above one year old, and the best cow calf respectively. The entries were four animals in Class 33, and five entries for Class 35. Taking these two classes together we must say that they contained animals of great future promise, and the first prize in each having been awarded to Mr. Nicholson shows that he has laid a solid foundation of future excellence in his herd, and in both classes he again defeated Her Majesty, although the animals from the Show Farm were high bred, well fed, and of great weight for age. Longhorns.—Classes 36, 37, 38, and 39 were prizes for bull exceeding twelve months, for bull not exceeding two years old, for cow in calf or in milk, and for heifer not exceeding two years old. There was no competition in either class. All the prizes, however, were awarded to the President of the Society, Major-General Sir F. Fitz-Wigram, Bart., Leigh Park, Havant. The stock receiving the prizes in these classes were worthy of them in the estimation of the Judges; but the visitors at the Show, ourselves amongst others, did not admire

the breed much after seeing such fine animals of the other breeds. Herefords.—Although prizes were offered there were no entries. There are few herds of this breed of cattle to be found in the southern counties. There were prizes offered in six classes for bulls, cows, and heifers of this ancient and beautiful breed of cattle, which from time immemorial had been the exclusive breed of the south-western counties, but during the past twenty years the Shorthorns have displaced a great number of herds in their native counties. There were no more than three entries in either of the six classes, and the first prize was awarded in five classes to one exhibitor, Mr. W. R. Fryer of Lychett Minster, Poole, Dorset, which is a very remarkable success for his stock, because there were other herds well represented which possessed high quality and breeding. One prize, however, was taken for the bull of any age by Mr. John Walter, M.P., Wokingham. This was a large and well-bred animal for the breed, but they are now for the most part kept, like the South Down sheep, by farmers who have a fancy for them, and it is well that it should be so, for both are useful for crossing with other stock for improving their quality.

Sussex Cattle.—There was a good show of this breed, which has been improved very much within the past five years, and is now an excellent breed for producing animals when early maturity is required. They are also sought after for producing working animals. In some counties this plan of working oxen still prevails in spite of the advantages of steam culture. Classes 48 and 49, for bulls, two and six entries respectively. We noticed the first-prize bull, under three years old, belonging to Mr. J. S. Hodgson, Haslemere, Surrey, as being a grand animal of full pedigree. Class 50, six entries, for bulls not exceeding one year old. This was a capital show of bull calves, the first prize being awarded to Mr. J. A. Vickross of Hill, Sussex; the second prize being given to Messrs. Heasman of Worthing, who are celebrated as breeders of this kind of stock. Classes 51, 52, 53, and 54, for the best Sussex cow, heifer, and calf respectively. These classes were well contested, there being three entries of four animals and one of five. This speaks well for the Sussex stock, showing that they are increasing in numbers for certain purposes, but not as dairy stock. In three out of the four classes Messrs. Heasman take the first prize. We are particular in giving the names and addresses of the prizewinners, in order that the home farmer may know where to obtain the best of any of the stock exhibited. Channel Islands cattle.—The exhibits under this heading were the great and most attractive feature of the Show—at least as regards the amateur and butter-making dairy stock. Class 55, for the best Jersey or Alderney bull of any age, eight entries. First prize to Mrs. Malcolm, Lyndhurst, Hants. This animal was bred by Mr. C. Dixon, Southampton. The whole class was commended, Mr. Simpson taking the second prize. The class as a whole was the best of its kind we have ever seen, the colour of the animals being generally silver-grey. Classes 56 and 57 had five and eight entries respectively. First prizes were given to Lieut.-Col. Portal of Micheldever and Mr. George Simpson of Ryegate; Mr. John Cardus of West End, Southampton, taking a second prize in one case and a commendation in the other. The animals in these classes were very choice in breed, condition, and colour, and as a whole were better in outline and symmetry than we have previously noticed. Upon the general qualities of this breed it may be said they are becoming more fashionable and are kept in increasing numbers. For the best Jersey or Alderney cow in milk, fourteen entries. This was a beautiful show of first-class animals as dairy stock, as well as excellent specimens of the breed. First and second prizes were given to Mr. J. Knight of Farnham, Surrey, and Mr. George Simpson respectively, Mr. John Cardus taking the reserved number and a high commendation; in fact, these four cows were so near alike in outline and quality that without seeing them out of their pens it would be difficult to criticise the awards. Class 59, for the best Jersey or Alderney heifer under three years of age, fourteen entries. First prize was taken by Mr. G. Simpson, who was again to the fore with a rare heifer and excellent specimen of his choice collection and herd; Mr. G. A. Fuller of Dorking, Surrey, being second with a promising heifer of beautiful colour and quality. Her Majesty the Queen exhibited two very nice heifers from the Isle of Wight in this class, but they failed to attract the attention of the Judges so as to be awarded any commendation; it cannot, however, be considered any discredit in such a splendid array of heifers as this class brought together. For the best Jersey heifer under two years old, seventeen entries. This we thought the most interesting and beautiful display of young animals in the whole Show; the first prize being taken by Mr. J. Cardus of Town Hill, Southampton, places him in a high position, for in this class the stock of all the best breeders was exhibited; Mr. G. Simpson taking the second prize, Her Majesty again exhibiting a choice heifer both in form and quality.

A large number of commendations were given in this class. Class 61, for the best Jersey heifer not exceeding twelve months old, fifteen entries. The first prize was won by Mr. H. J. Cornish, Sherborne, Dorset; second Mr. G. Simpson; Mr. J. Cardus taking the reserved number and a high commendation. This is the class of promise for the future. Her Majesty the Queen, again contending in this class, was unsuccessful, for it is indeed a task and a study for any person however experienced and at whatever cost to insure success in such a splendid exhibition as the Jersey and Alderney stock afforded at the Royal Counties Show, 1880.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Ploughing the land and sowing the main crop of common Turnips will be continued at every interval when the horses are not required at work connected with the hay harvest in most of the districts of England, except in the northern counties, where sowing Turnips at the late period is not often attempted. As the roots will not grow up to so late a period as in the south and eastern part of the kingdom much land is being laid into permanent grass, especially on the strongest and flattest land, in nearly every part of the kingdom, and as the middle of August is the best time for sowing the seeds the land ought now to be nearly ready. Where many weeds prevail the land may now be ploughed and pressed, and worked down quite fine ready to receive the seed, and left ring-rolled in order that such small seeds as that of grass may not be buried too deeply in the earth, and instead of the old-fashioned brush harrow we have now the chain harrow lately improved by Howards of Bedford. The grass seeds, however, should be sown in separate lots, the heavy and light seeds, for these seeds will not mix properly, and in consequence cannot be sown so regularly either by hand or by Bennett's machine. For varieties of seed adapted to the various soils we must refer the home farmer to our article upon the subject in this Journal (page 105, vol. xxxviii.).

Stacking parkland and pasture hay must be continued at every opportunity, and if hay is taken to the stack rather hastily it is well to keep a long probing iron in the stack which may be withdrawn once or twice a day, and if the iron is too hot to bear holding by the hand it may then be pronounced to be in some danger of injury by overheating. As, however, the probing iron should have a barb or arrow head at the end a piece of hay may be pulled out from any part of the rick, showing the condition and colour of the hay, and enabling the home farmer to decide the point of overheating. If such should be the case the rick may be cut at the side and lay open for a day or two and straw filled in; this will generally prevent any excessive heat and damage, sometimes resulting in taking fire. We have sometimes adopted the plan of using a sack stuffed full and firm with straw, and in the act of building the rick the sack is lifted as the rick rises in making, and in this way a sort of chimney is made in the centre of the stack for the escape of any undue heat. Another plan we have adopted is turning the rick and making it again; but this will require watching as to the proper time of doing, because if we exceed five or six days from the time the rick was first erected the hay on the removal will not heat sufficiently the second time, or settle down close enough to prevent its turning mouldy. When, however, it is done at a suitable time we have on various occasions obtained some exceedingly choice and valuable Clover hay, especially adapted for lambs when feeding on roots.

Hand Labour.—Men will now be employed in hoeing and singling the root crops, and it is of much more consequence to save and leave the best and strongest plants than to thin them out with exact regularity as to distance apart. It is also of importance to leave the plants closer in the rows when late sown, for there is not the probability of making large bulbs like the early-sown. In fact, it is now more the practice than formerly to leave a greater number of plants to the rod, because it is considered that bulbs of moderate size are more nutritious than those of large dimensions. In thinning Carrots it will be remembered that we have advocated hoeing to keep the land clean between the lines, and that we object to thinning at the early stage or growth of the plants, as they are so liable to be eaten by the grubs; we have, therefore, left them until the roots become about the size of the finger, and then pull by hand the surplus roots, and carry them away for cattle-feeding. A tenant of ours has this year sown mixed seed, White Belgian and the Early Horn Red Carrot, so that in hand-thinning the Red Horn Carrots may be pulled and bunched for the vegetable markets instead of being given to the cattle, and this is a very suggestive practice. These Carrots being short in the root pull readily, and being bigger on the crown are easily seen at the time of pulling; they also open and leave the ground loose, enabling the large White Belgian Carrots left for the main crop to swell readily and become a weighty crop.

We must ask the home farmer now to consider the question of buying sheep stock, as the early fairs for the sale of the Hampshire Down breed will be now taking place, the first from this time being Overton, Alresford, Hants, and Britford in Wiltshire, at which fairs as well as various others which occur about this time, nearly all the best flocks are sold, especially of ewes intended for producing early lambs for the Easter markets. On many farms, particularly in the hill districts, water for the cattle and all purposes has been very scarce. It is often found, even where there are ponds for preserving

water in summer time, that enough cannot be obtained; we therefore recommend that the farm roads and parish roads are near the water tables and ditches should be kept scoured, and made to lead into the ordinary ponds; a thundershower will then often fill a pond, whereas if the water is not led into the pond it will go in other directions and be lost. Where the pastures have been fed we find in various instances that bunches and tufts of rushes appear, but now is the time to cut them close with the Gorsc scythe, or what is better, to cut them up with the turf-cutting implement and burn into ashes, because we have found even where the land has been drained these tufts of rushes will live on after the subsoil water has been removed. The spring Beans are nearly everywhere covered on the tops of the stem with the black aphides; immediately this is seen they should be cut up and used as green fodder for cattle, especially pigs and young cattle, and the land ploughed and fallowed for wheat, except in those instances where Rape or Turnip seed were sown in the beans, in which case they may be dragged every few days whilst young, which will set them growing fast.

THE CROPS IN THE MIDLANDS.

A RUN northwards from London by the Midland railway enables the traveller to take a passing glance at the crops, and as it is fair to suppose that those by the line side are a type of others beyond them in the same district an idea can be formed of their general character. The condition of the various crops, meadow, grain, and roots at the present time is important for everybody, and fortunately all of them have a far better appearance than they had at the corresponding period last year.

For the first few miles we pass through a beautiful undulated and well-wooded "hay country," nearly all the land being meadow. Much of the grass is cut, some being secured. Generally speaking the herbage is short, and it is easy to see by the fields that are "down" that the crops are not heavy; indeed some of them are very light, indicating that the land does not receive such generous treatment as is desirable. There is no doubt whatever that many meadows would be vastly improved by liberal dressings of those fertilisers that are known to have such a potent effect, together with the sowing at the proper time of such renovating mixtures of those grasses and fodder plants that are best adapted to the nature of the soil.

For the next half hour or less the route is through a district where arable land prevails, and it must be said where Charlock reigns supreme. Many fields are like sheets of gold, and it is no exaggeration to say that two-thirds of the cost of such labour and manure as are applied to the land are really devoted to the culture of this exhausting weed. There is no wonder that farming is unprofitable under such circumstances; it would not be lucrative if no rent had to be paid for the land. It is not suggested, however, that none should be paid, for many an example proves that low rents are not conducive to high farming, for more often just the contrary is the case.

We rush on, and after passing through the yellow zone about Luton better land, or at any rate, far better farming, is seen. Most of the Wheat looks well, not a few of the fields excellent, and weather permitting a satisfactory yield may be anticipated. Barley and Oats are less promising, many fields being both short and thin, only a few having a full and healthy aspect. Beans and Peas are generally highly promising, the growth being ample and blossom plentiful. With favourable weather for setting the crops will be good, as there is a welcome absence of the black fly, which has often such a disastrous effect on the former crop. Potatoes, except those that were evidently planted late, look remarkably strong and healthy; indeed in this respect they could not be surpassed. Dry weather, however, is now wanted, for should the rains, which have been so frequent of late continue, and a high temperature at the same time prevail, the devastating murrain is certain to make its dreaded appearance. Other root crops, such as Mangolds and Swedes are regular and apparently healthy—a vast improvement on last year; while the Turnips appear to be coming up freely, and the showers have prevented the attacks of the "fly" which is so ruinous in hot dry weather.

From Kettering to Manton the scene changes. Not only by this route is the journey from London to the great towns of the north shortened by half an hour, but one of the most beautiful "bits" of pastoral country traversed that is to be seen in the kingdom. Far as the eye can reach is a rich panorama gently rising and receding until it merges in the misty horizon, which is broken by distant hills. In this tract of grazing land extending almost to the Trent the herbage is fresh, and apparently sufficient for the large herds and flocks with which it is depastured. The animals in this district are numerous and have a healthy sleek appearance indicative of a thrifty condition. Beyond doubt there are more animals in the pastures now than there were last year at this time, and they are also in much better condition. As the

Trent valley is reached meadows again prevail, the grass crops being good, but yet green. The ground, naturally moist, has been rendered too wet for haymaking by recent rains, and in places has been temporarily inundated. The rains in this district and northwards have been much heavier than in the south, and the crops are much later.

Altogether agricultural prospects are decidedly brighter now than they have been for a long time past, and it is ardently to be hoped that we are on the threshold of "better times" for those engaged in the most important of all industries—the production of food for our dense population.

POULTRY NOTES.

THE POULTRY CLUB.—The Committee of this Club were lately severely blamed in some quarters for declining to give a decision upon the general management (or mismanagement according to a complainant) of the Hemel Hempstead Incubator Contest. The Committee having no power to summon witnesses or to put them on oath, found it impossible to sift satisfactorily a mass of contradictory assertion. In a sensible and straightforward manner, as it seems to us, the Committee candidly pointed out the reason of their inability to adjudicate generally upon the case, and confined themselves to exculpating the accused from all *mala fides*. Curiously enough the Jockey Club is at the present moment in exactly the same difficulty upon the intricate and curious question of the identity of this year's winner of the Derby. The documents, it seems, which should throw light on the subject, fail to do so, and the Club has no power to examine witnesses on oath.

POULTRY v. RAILWAY COMPANIES.—Certain railway companies have long been the enemies of exhibitors of poultry and Pigeons. They refuse to be common carriers of poultry, and attempt to force those who consign live birds to them to sign a declaration to the effect that they do so entirely at their own risk. We have always believed these byelaws, to which officials point as if they were Acts of Parliament, to be entirely *ultra vires*. From a common-sense point of view, having regard to the immense powers given to railway companies, and to their having thereby superseded all other modes of conveyance, it would seem that they are bound to be common carriers of poultry. The Poultry Club took legal advice on the point, but failed to get a definite or satisfactory opinion. We think that fanciers who have been the victims of such byelaws should take heart on reading a decision of the Court of Queen's Bench delivered last week, by which one of the most usually accepted byelaws—viz., that a passenger who gets into a train without a ticket must pay from the starting point of the train, is entirely *ultra vires*, and so invalid. If byelaws for which there seems in common sense some reason are invalid, surely such absurd ones as those quoted above are likely to be so.

POULTRY HOUSES.—Poultry-keepers should look to the roofs of their poultry houses. We always find poultry even more liable to contract chronic illness from any damp or drip in summer than in winter. Dry spring winds often cause felt to crack, and then violent showers, such as we have been having of late, make their way into the houses. A zinc capping is a good top to a felt roof.

SUMMER POULTRY SHOWS.—These seem as numerous this year as ever. When they are held in tents and last but one or two days they cause little harm or fatigue to the birds, and are interesting as showing who are the most skilful rearers of fine early chickens. It must not, however, be thought that these forward chickens will, as adults, necessarily be any finer than many which are not yet half grown. Among the best schedules before us are those of shows to be held at Cardiff on July 27th to 29th; Ilminster, August 5th; Leicester, July 28th and 29th; Ormskirk, August 25th; and Crewc, September 2nd to 6th.

POULTRY SHOW DATES CLASHING.—We regret to find that it was impossible to alter the dates of either the Oxford Poultry Show or that in connection with the Dairy Show at the Agricultural Hall. Oxford has now for many years held the place of the first great chicken Show, and so we hope that the Dairy Show Committee may in some classes admit adult birds, and so to some extent diminish the loss which must necessarily accrue to both from this clashing of dates.

BRIGHTON POULTRY SHOW.—The Committee of the Sussex County Poultry, Pigeon, Rabbit, and Cage Bird Society intimate that they have changed the dates of the Brighton Show to the 16th, 18th, and 19th of October in place of those previously announced, as Birmingham Show takes place on those dates. They also solicit the support of fanciers with regard to cups and subscriptions, as they have greatly increased the classes. Classes will be made for any special varieties if twelve entries are guaranteed. Members joining the Society from July 1st have the privilege of sending pens at half entry fee, and also have two admis-

sion tickets. All communications to be sent to—T. R. CUCKSEY, *Chichester, Sussex.*

VARIETIES.

GLOUCESTERSHIRE POULTRY SHOW.—A first and most successful show of Poultry and Pigeons was held in the Town Hall of Newnham, Gloucestershire, on Thursday in last week. The poultry numbered 125 pens; the Pigeons, which were very superior, nearly 250 pens. The Carriers, Jacobins, and Dragoons were particularly good. The Judge was Mr. O. E. Cresswell, who had travelled without halt from Naples to fulfil his engagement.

— **MARTINS' NESTS.**—A correspondent, L. Cherry, asks if any of our readers can recommend any means to prevent the martins building under the eaves of houses.

— **THE ANTLER MOTH.**—There has been a swarm of this insect in Tatton Park, Knutsford Park, which has destroyed every blade of grass over a great extent of ground. The rooks have now attacked them and are rapidly destroying them. This insect is known to entomologists as *Noctua graminis*, and is particularly plentiful in Sweden, Norway, and Northern Germany, where it does great injury to the meadows. It has been stated on very good authority that at one place in Bohemia two hundred men were once employed for four days in removing the caterpillars from sixty bushels of soil, twenty-three bushels or 4,500,000 of the grubs being collected. Dressing the land with lime has been recommended as a means of destroying them, but rooks and crows appear the most efficient for the purpose.

— **ROYAL AGRICULTURAL SHOW.**—The forty-first annual Show of the Royal Agricultural Society now being held is considered one of the finest of the Society's provincial exhibitions. The Show was held in the same locality twenty-five years ago; but whereas fifteen acres of land then proved amply sufficient for all requirements, sixty acres are now comprised within the enclosure occupied by the implements and stock. Placing last year's Exhibition, which partook of an international character, without the category, the show of stock is the largest yet held, with the exception of that at Bedford six years ago. The total number of animals in the stock yard this year is 1581, against 1354 at Bristol in 1878, and 1305 at Liverpool the year before. The entries for the Kilburn Show were almost double this number. There are 487 horses, 434 cattle, the same number of sheep, and 146 pigs. The implement yard is less extensive than formerly, the exhibits in this department having fallen off very materially, owing mainly to the wide distinction that is now drawn in the Society's charges for shedding between *bonâ fide* agricultural articles and implements not exclusively for use in agriculture. The display of seeds is most imposing, such celebrated firms as Messrs. Suttons, Carters, and others, putting forth their full strength. The total value of the prizes this year is £5700, of which over £1000 has been contributed by the Carlisle Local Committee. The Council have arranged with the Aylesbury Dairy Company to repeat on each day in the week the display of the various systems of butter-making which excited so much interest at last year's Show, and the programme also includes occasional demonstrations of bee management.

— **INSTRUCTION IN AGRICULTURE.**—The Committee of Council on Education, South Kensington, have issued the following memorandum:—It having been represented to the Lords of the Committee of Council on Education that many parts of the kingdom are still in ignorance of the system of aid to the formation of classes for instruction in the principles of agriculture afforded by the Science and Art Department; that the supply of teachers who have obtained the necessary qualification to earn payments on results is very limited; and that a strict adherence to the rules of the Science Directory, which require that in order to obtain aid classes must be under the instruction of such teachers, would entail the delay of a year in the commencement of classes in this important subject, My Lords decide that Secs. 34 and 36 of the Directory may be relaxed for this year in the following manner:—My Lords will be prepared to consider an application from any committee formed in accordance with Section 10 of the Science Directory, to grant a temporary qualification to any person selected by it as fitted to teach the principles of agriculture, and, if such application be found satisfactory, will

permit the teacher to earn payments on the results of the examination in May, 1881, on the condition that this provisional qualification shall then determine, and that the only teachers who can after that date be recognised as qualified to earn payments on the results of their teaching in this subject will be such as have complied with the ordinary rules. In making the application the committee must show that there is no technically qualified teacher in the locality who could be employed to instruct the class, and also state the grounds on which the proposed teacher is considered to be really capable of giving instruction in agriculture, by his knowledge of chemistry and other sciences bearing on the subject.

— **THE HARVEST IN RUSSIA.**—A recent telegram informs us that as a consequence of the defective harvest prospects the question is discussed of forbidding the export of Wheat partially, if the deficiency be confirmed in the south of Russia, and a general restriction if the deficiency extends to other parts. Founded on reports from forty-eight provinces, this year's crop is estimated to be 39,717,800 quarters less than that of 1878.

ARTIFICIAL COMB FOUNDATION.

HAVING had considerable experience the last three seasons in the use of artificial comb foundation, and the subject having been frequently referred to in this Journal, I wish to state my ideas on the subject. I have found it alone uniformly successful when used simply for guide comb. For this purpose it is invaluable, nor does anything equal it, not even bee-made comb saved for the purpose however carefully introduced. Chiefly it is useful as guide comb in bar-framed hives. I find that a strip of it the whole length of the bar, and well cemented by running a slender stream of hot melted wax on both sides of the strip, is a specific against irregular combs. Every bar should be so treated, the comb foundation being put exactly in the centre of the bar the whole way. Nor do I find any "sagging" if it be not more than 1½ inch deep, or at most 2 inches. That this small piece of guide comb is an immense help to the bees will be acknowledged at once, when it is observed that an ordinary Woodbury bar-frame with a piece only 1½ inch deep will give over two thousand cells.

I have tried whole pieces applied carefully according to the directions of experts; but, whether so applied to the bar or in ways of my own devising, they will sag and twist about, and in very few instances have I been even tolerably successful with any pieces larger than those mentioned above. I should never think of employing them in any other way, least of all to tempt bees to work upwards. In former days, when I worked bellglass supers, I generally gave my bees some clean pieces of their own comb to start with, which I contrived to fix in such a way that a bit of the comb ran downwards through the hole into the hive below. This set them to work immediately, but I always found that when they had built up the comb a few inches into the bellglass it soon toppled over according as the weight of honey introduced became too heavy. This would happen even though the ingenious architects were most careful to broaden the base of their structure pyramid fashion. I used to enjoy watching the clever way in which they set to work to remedy the mischief; first by removing the superabundant honey so as to lighten the weight, and then by most ingenious buttressing of the fabric. I have long ceased to use these bellglasses because of the great labour and inconvenience to the bees which they occasioned, the slipperiness of the glass being one great evil. For profit wood or straw are the best materials for supers.

I have recently had very interesting evidence both of the value of artificial comb foundation and of the great help it affords the bees. A fine swarm issued from a Woodbury soon after twelve o'clock yesterday. It was hived in a similar box with bar-frames, eight of which were furnished with the strips of guide comb as described above. Here were given them foundations of about 16,000 cells. The day was splendid, and, as the hive was put in place of the parent Woodbury, of course nearly the whole adult population was at work in the course of the afternoon and this morning (June 26th). In the afternoon of yesterday I examined the old Woodbury, took out every comb, and cut away as many as eleven royal cells. This done I set the hive over the box occupied by the swarm. So they passed the night. At eleven this morning I again took off the parent Woodbury, and, after removing the box containing the swarm, replaced the Woodbury as it was before the swarm issued. The swarm-box was next examined, every bar-frame taken out, and the bees shaken down from each bar upon the Woodbury's top with all its holes open. This done I replaced over it two Lee's supers, in which the bees had been

working before the issue of the swarm. All this took about an hour. Since then work has been going on as if nothing had happened; the supers are fuller than ever, and I trust there will be no more swarming.

This evening curiosity has moved me to examine the box occupied by the swarm for about twenty-two hours. I have also counted the new cells which during that time the bees have added to the pieces of comb foundation; they amount to over 2650. Besides this all the 16,000 foundation cells have been elongated, and a quantity of honey placed in them; also the queen had laid a lot of eggs. They would probably have worked much more in the new box had it not been for my having placed the Woodbury over them, into which I found this morning that the majority of the bees had ascended, as I expected they would.

This gives some idea of the rapidity with which bees can work, but I confess I was surprised to find it was so much greater than I had imagined.—B. & W.

AS I may fairly claim to have my say in the discussion on the merits of comb foundation now going on in our Journal, I make no excuse for departing from my usual rule of avoiding controversy in these columns. Like Mr. Cheshire I have been experimenting in various ways with sheets strengthened, by the introduction during the process of manufacture of various strengthening materials. I have embedded in the heart of the sheets threads of silk and raffia, and strips of parchment and tinfoil, and generally with satisfactory results. My aim has been to devise something that might enable us to fill the frame entirely, at least from side to side, and render impossible the risk of breaking down when new swarms are introduced among full sheets. But although I have had excellent results so far, I cannot claim any special advantage in sheets so strengthened, seeing that plain ordinary sheets have uniformly done just as well. The general result of my experiments is a conviction that for ordinary purposes strong well-made foundation without any strengthening material is as good as any. I am confirmed in this by the uniform testimony of my numerous correspondents. Only the other day I received a letter from an Irish Church clergyman who uses the large Langstroth frame, and whose experience may therefore be regarded as affording a severe test of the value of foundation. He says, "It is satisfactory to be able to say, that having used about two hundred sheets of your foundation, I have not had more than one (and that through my own fault) either broken down, torn, or distorted; and I look with contempt upon wired and wooden foundation."

Mr. Cheshire does not give the results of his experiments with plain unstrengthened sheets, but I feel confident that had he done so it would have confirmed my opinion that the supposed advantages of rakes, threads, &c., are quite immaterial compared with the expense and trouble of fussing with them. I think, therefore, that bee-keepers may still possess their souls in patience and content themselves with what in experienced hands has hitherto yielded such satisfactory results.

I feel truly grieved to have to advert, as I feel bound to do, to the remarkable notes on page 506 in the issue of June 24th from my friend Mr. A. Pettigrew. More than a year ago the world of bee-keepers learned with satisfaction that Mr. Pettigrew had so far yielded to modern ideas as to obtain 10 lbs. of comb foundation for experiment. Though somewhat late in the day the results have by many been eagerly looked for. Being informed how he proposed to fix his sheets in supers—viz., by wedging them between sloping sides—I wrote him privately, warning him that only failure could result, and enclosing printed directions for the proper fixing of the sheets. But, not content to tread in the footsteps of other experienced men, Mr. Pettigrew sets to work in a fashion that is marvellous indeed. He attempts to stand a rope on end, and invites the small boys to have a climb; down comes the fabric, boys and all, and at once the verdict goes forth, "Ropes are of no earthly use unless they can be made to stand on end." He builds a structure on a base one-sixteenth of an inch broad, and because it topples over under superincumbent pressure he is surprised. Now, this is really trifling both with science and Nature. Ropes and chains are made to be suspended, and in that position may bear their tons. In a state of nature bees never build their delicate combs from the floor upwards, but from the ceiling downwards. Still, if Mr. Pettigrew will insist on reversing Nature it is satisfactory to know that wondrous art has just in time come to his assistance in the form of wooden foundation. Mr. Abbott will doubtless be delighted to supply Mr. Pettigrew with samples for experiment, and the world will anxiously await the result.

I do not know that I would have thus noticed your correspondent's wonderful experiments were it not for his challenge that

"others" should answer why his foundations thus toppled over, and his incendo following, "if they are made of pure wax." It is well known that the foundations in question were obtained from me. They were of the thinnest and whitest material, such being requested. That they failed under a test they never were made to stand, will not suggest to any experienced bee-keeper the least idea of adulteration; yet this is hinted at. Now, so confident am I of their purity that I declare myself ready to pay the expense of analysis by a public analyst should the decision be an adverse one, and I hope Mr. Pettigrew may thus set his mind at rest on the matter. The immense importance of comb foundation to bee-keepers makes it desirable to obtain all the light we can upon the best form to use and the way to use it. Let others report results whether adverse or favourable. Especially should those who have had years of experience come to the front now. Let them, however, learn before committing themselves to print, that it is just possible that any such failures as those referred to may be the result of their own mismanagement.—WILLIAM RAITT, *Blairgowrie*.

OUR LETTER BOX.

Swans (*Cuckfield*).—We do not think that they feed on fish. They are known as feeders on aquatic plants and insects. The fish in your pond may hide from the swans. If you went to the pond at night with a light you might see if the fish came to it.

Mangold Leaves Blistered (*R. S.*).—The leaves are infested with one of the leaf-miners—the maggots of a fly of the Dipterous order, which punctures the leaves and deposits eggs in them, the maggots which succeed feeding on the parenchyma or pulp of the leaves and often quite destroy them. If you hold up a leaf to the light and examine the papery white patches, these maggots will be easily discernible. In one of the leaves you have sent, the freshest, we found four in the space of a square inch. From the more withered leaves the maggots had escaped, no doubt changed into the pupa state, and entered the earth to undergo their transformation to the chrysalis form and produce more flies. The leaf-miners are most destructive insects, and when very numerous almost ruin the crops. Some of the species attack Turnips persistently; indeed this form, until the present season has been more common than that affecting the Mangolds. Unfortunately we know of no other remedy than gathering the leaves immediately any blisters are seen and burning them. It is not safe to give the leaves to animals, and to permit them to remain and shrivel is to increase an insidious and destructive pest. Some Mangold crops have been almost destroyed this year by the maggot; indeed we have heard of some being ploughed up and the land sown again; but this we think a mistake, as the next crop affords food for the perpetuation of the enemy it is so desirable to banish.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1880.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
July.										
Sun. 4	29.845	59.2	54.1	N.W.	60.0	66.8	53.8	120.8	52.8	—
Mon. 5	30.165	61.1	53.3	N.W.	59.2	73.0	47.8	130.6	45.0	—
Tues. 6	30.053	62.6	57.5	S.W.	60.6	73.0	53.3	107.6	49.7	0.010
Wed. 7	29.730	59.3	56.6	S.S.	60.2	63.1	55.5	88.7	52.7	0.077
Thurs. 8	29.631	61.6	54.3	W.S.W.	59.3	68.7	51.1	122.3	46.9	—
Friday 9	29.766	54.7	52.3	W.	59.3	69.3	52.3	122.2	48.6	0.180
Satur. 10	29.858	62.7	57.2	N.W.	59.0	68.8	52.0	117.2	47.0	0.138
Means.	29.864	60.0	55.0		59.7	69.4	52.3	115.6	49.0	0.405

REMARKS.

- 4th.—Rain in early morning, generally fine and bright during the day, overcast with heavy clouds about at intervals, fine evening.
 5th.—Fine and bright before noon, afternoon overcast, fair evening.
 6th.—Overcast and gloomy, very slight sunshine, rain in evening.
 7th.—Dull cool morning, showery all day, slight intervals of sunshine, fine in evening.
 8th.—Very bright in early morning, shower at 10 A.M., very heavy rain for about a quarter of an hour from 1 P.M. during a thunderstorm, fine afterwards.
 9th.—Dull morning, heavy showers between 9 and 10 A.M., fine and bright afterwards.
 10th.—Dull in forenoon, heavy shower between 1 and 2 P.M., fine afterwards.
 Temperature below that of the previous weeks, and air damp with occasional drenching showers.—G. J. SYMONS.

COVENT GARDEN MARKET.—JULY 14.

OUR market is well supplied with all classes of goods, prices generally being lower. The soft fruit is well crop, being on the whole short with the exception of Raspberries, which meet with a slow demand.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	2	6 to 4	6		Neectarines..	dozen	2	0 to 10	0	
Apricots.....	box	1	0	2	6	Oranges	£ 100	4	0	12	0
Cherries.....	½ lb.	0	4	1	0	Peaches	dozen	3	0	10	0
Chestnuts.....	bushel	12	0	16	0	Pears, kitchen ..	dozen	0	0	0	6
Figs.....	dozen	2	0	4	0	dessert	dozen	0	0	0	0
Filberts.....	½ lb.	0	0	1	0	Pine Apples	½ lb.	1	0	3	0
Cobs.....	½ lb.	0	0	1	0	Plums	½ sieve	0	0	0	0
Gooseberries ..	½ sieve	2	6	4	0	Raspberries	½ lb.	0	3	0	6
Grapes, hothouse	½ lb.	1	6	3	0	Strawberries	½ lb.	0	6	1	0
Lemons.....	£ 100	6	0	10	0	Walnuts	bushel	0	0	0	0
Melons.....	each	2	0	4	0	ditto	£ 100	0	0	0	0



		[Ives (Hunts) Shows
22nd	TH	Newport (Monmouth) Horticultural Show ; Aberdeen and St.
23rd	F	Botanical and Horticultural Congress at Brussels.
24th	S	Wirral Rose Show ; Clockheaton Agricultural Show.
25th	SUN	9TH SUNDAY AFTER TRINITY.
26th	M	[Horticultural Society, Fruit and Floral Committees at 11 A.M.
27th	TU	National Carnation and Picotee Show, South Kensington ; Royal
28th	W	Shrewsbury Rose Show ; West of Scotland Pansy Show.

MEALY BUG IN VINERIES.



HERE is no insect with which the gardener has to contend that causes greater annoyance and disappointment than the mealy bug, and certainly none of the many pests that inhabit fruit and plant houses are so difficult to eradicate as it is.

It has been asserted that when the bug once takes possession of a house its entire extirpation is impossible ; such may be the case, but my experience points in the opposite direction. At the same time I admit that extreme measures have to be adopted for thoroughly clearing it out, which I believe is not possible at the first attempt, but it must be closely watched for some time afterwards. In Peach houses it is much easier to be disposed of. One good cleaning of the trees and the house in winter, as well as removing the surface soil during the dormant season of the trees, with the syringe constantly being employed when they are in active growth, soon destroys the insects, which do not like water syringed upon them with force, and wherever it is applied regularly and sufficiently the bug will be found to diminish rather than increase. In vinerics if the Grapes are to retain their bloom syringing would be entirely out of the question until the fruit is gathered.

If vinerics are not badly infested, the Vines should have all the loose bark removed after pruning, and be well washed with fir-tree oil at the rate of half a pint to three gallons of water, or with Gishurst compound. Paraffin oil is certain death to the mealy bug, but should only be employed by experienced hands upon Vines, for it will kill the Vines as well as the bug if not judiciously applied. It is good for cleaning the woodwork, but must be diluted with water, and should be applied with a brush. The surface soil, if the border be inside, should be removed and fresh soil supplied. The walls should also be washed with hot lime mixed with paraffin oil. Even if every part of the house and Vines is thoroughly cleaned the pest will make its appearance again after the Vines have started into growth and the season has advanced. The early spring or summer, according to the time when forcing commences, is when the insects increase. Their destruction can be accomplished when they are first seen creeping upon the Vines, which should be examined sedulously and perseveringly. If left until the foliage expands the work of searching for the enemy is almost useless ; but if the search is thorough and continuous early in the season, and the insects are killed as they appear, they will considerably decrease, and in a season or two the house will be entirely free.

Vinerics that have become badly infested require a large

amount of work to thoroughly clean them, and the best and most satisfactory system that can be adopted is to remove the Vines and all the soil, drainage, &c., from the border. The wood and wirework should be cleaned with paraffin oil, and afterwards well painted. The brickwork if previously lime-washed should be cleaned, and the walls, paths, pipes, and other portions of the house where practicable washed with spirits of salts. This if well and thoroughly applied will destroy any bug that may be concealed. This being done fresh drainage should be employed, the border remade, and fresh Vines planted. Clean Vines must be obtained, and it is far better to wait and start by raising Vines from cucs than to plant infested Vines. After planting constant attention must be paid for fear the enemy should again appear, for probably it will do so, but in small numbers, and must be promptly removed. A house here that was badly infested was treated as described, and the mealy bug appeared again some time after the Vines were planted. They were planted in July, 1878, but before winter no trace of any insects was to be seen, and the house is up to the present time thoroughly clean. Some may probably conclude that if bug in small quantities can be eradicated from Vines, it can also be banished from houses badly infested. Experience does not support this view of the matter. When the insects are few they are upon the Vines principally, but when numerous they are in the walls, in any crevice of the woodwork, under the paint if possible, and even upon the strong roots of the Vines under the surface of the border. Vinerics infested as described may be extreme cases, yet such cases have existed and do exist, and a thorough clearing-out and cleaning as above indicated is the only means of stamping out this, one of the greatest enemies of the gardener.

When mealy bug exists upon Vines the insects are sure to make their way into the bunches if every precaution is not taken to prevent them. Pieces of white paper should be cut circular in shape (the size depending upon the size of each bunch of Grapes), with a small hole in the centre, a slit being made from this to the edge for admitting the footstalk, by which means the paper can be fixed over the bunch. A small portion of cotton wool should be placed above the paper round the stem of the bunch. This will prevent the insects crawling down the stem through the hole in the paper to the bunch. It will be found that the cotton wool is a good trap for the pest, and should occasionally be removed and fresh wool supplied. The cotton wool alone will prevent the insects going into the bunch to a certain extent, but better still the paper and wool combined. The paper shield also prevents many insects that fall from the Vine going into the bunches, but a few will probably find their way there, and if allowed to remain for a time they increase rapidly. The bunches should, therefore, undergo a rigid scrutiny at least once a week. Bunches that are already infested must be cleansed as they are cut, and if the insects are removed with a feather or small brush the Grapes are much more rubbed than if placed under a tap with a good force of water running through the bunches, which will remove the greater portion of the bug without much damage to the bloom if the work is carefully carried out. The Grapes must be afterwards hung up where air can play freely about and through the bunches to dry them. If any insects remain after the washing they can be removed with a small brush. The paper collars do not look attractive in a vinery, but they assist considerably in keeping the pest from the bunches,

especially if at the same time it is constantly sought for upon the Vines and destroyed.—WM. BARDNEY.

THIS most troublesome enemy is bad enough to cope with on plants, but on Vines it is most to be dreaded. Some years ago I took charge of some old Vines that were covered with the mealy bug insect, the bunches of Grapes being white with this dreadful enemy. We were obliged to wash the bunches before sending them to my employer's table. This washing of course disfigured the Grapes, still it was much better to wash the Grapes than to send them to the table covered with mealy bugs. I find nothing so successful in the destruction of this pest as tobacco juice. As soon as the leaves have fallen prune the Vines and scrape all the old bark from them, especially near the eyes. When the Vines are thoroughly cleaned of all the old bark paint them with tobacco juice. A second painting should take place, but with a composition of Clay's tobacco powder and sulphur mixed with soft soap water. This is the way I disposed of the mealy bugs. The house should be thoroughly cleaned, and the walls washed with hot lime.—H. CAKEBREAD, *Raymers*.

NEW ROSES.

OF the new continental Roses of 1877-8 and 1878-9, I have on my list eighty-three of the former, and eighty-one of the latter issue, making a total of 164 in two years, the list of 1878-9, perhaps, not being complete, as I find the names of Lacharme and a few of the other usual raisers wanting. If to those be added about thirty English varieties which I cannot classify correctly in years, and setting aside the continentals of 1879 and 1880, of which I have upwards of seventy already catalogued, we have new Roses at the rate of something like one hundred per annum to test! This is indeed a herculean task, and hardly to be undertaken by a single firm or individual, and under the best circumstances the matter must be a seriously costly one to the trade. It is, therefore, exhibitions like those held by the National Rose Association and at the Alexandra Palace which give special encouragement to the producers of new Roses by the liberal prizes offered; and the public are also largely indebted to them, as the unnecessary multiplication of mediocre and inferior varieties is advantageously checked.

At the Exhibition at the Alexandra Palace on the 10th inst. some thirty varieties of 1877 and 1878 were shown. Amongst these A. K. Williams (Schwartz, 1877) fully realised all that has been previously seen and said in its favour, and it will not be vaunting it too much to describe it as the perfection at length attained of the Charles Lefebvre type, for in form, substance, colour, and build it seems in all respects to be the perfect realisation of a Rose of this famous type; all its predecessors of the same apparent parentage, such as *Souvenir d'Adrien Balnet*, *Marguerite Brassac*, &c., being but beautiful copies of the grand but faulty original. The wood, however, of A. K. Williams is more thorny, and in that respect distinct from the type. A gold medal is due to M. Schwartz from somebody for this Rose! Of the same race Paul Jamain (H. Jamain, 1878) appears to be a fine stiff-petaled, imbricated dark Rose, and in the absence of A. K. Williams might be welcomed with *éclat*. As, however, Paul Jamain is a year junior, we must wait before consigning it to mediocrity. *Duchess of Bedford* (W. Paul & Son, 1877) was well shown in several stands, and in brilliancy of colour, form, substance, and general appearance comes between *Général Jacqueminot* and *Sénateur Vaisse*. *Jules Chrétien* (Schwartz, 1878) is another fine dark of the Camille de Rohan family, but with more regularity of petal. The same may be said of *Souvenir d'Auguste Rivière*, a Rose, however, of more substance. *Mabel Morrison* (Broughton, sent out by Mr. Bennett, 1878) is certainly the purest white H.P., and being thin, although of good form, ought to seed and become the parent of a really good white H.P. *Constantin Tretiakoff* (H. Jamain, 1877) as exhibited did not fulfil the expectations I formed of it last season. *Mdlle. Marie Verdier* (E. Verdier, 1877) is a very fine large-cupped purplish pink Rose of good substance, and, opening freely, promises well for a good exhibition variety. Charles Darwin, a dark red seedling of my own raising, and sent out by Messrs. Paul & Son in 1878, will not, I venture to hold, be a disappointing Rose, as it combines fine form and depth of colour with wonderful growth and freedom of bloom. It will be seen that amongst those selected as above the majority are dark; and this is doubtless in accordance with the public taste, for where one light Rose meets with admirers the dark are preferred by the many.

Amongst the noticeable and promising new varieties which are just leaving the hands of the grower, or only provisionally exhibited, were *Duke of Teck* (Paul & Son, 1879), the brightest of the Duke of Edinburgh family, if Mr. G. Paul has not surpassed it by his *Brightness of Cheshunt*, a Rose of a similar type not yet sent out. *Pride of Waltham* (W. Paul & Son), light rosy salmon of the Eugénie Verdier type, but rather lighter in colour and better filled. *Mrs. Harry Turner*, a seedling of my own from Charles Lefebvre × Alfred de Rougemont, now being sent out by Mr. Turner, a very brilliant-coloured imbricated Rose of first-rate form and good growth. As Mr. Turner has kept this Rose until he has thoroughly tested it, and ultimately honoured it with the family name, I take it to be a mark of his confidence in the variety, which is certainly a very taking one. In addition, *Countess of Darnley* (Paul & Son), as shown, of a distinct rosy mauve tint, and good form and substance; A. McKenzie (from the same raiser); *Lady Sheffield* (W. Paul & Son); the Rev. W. H. Stomers (Laxton, in the hands of Mr. Turner), raised from C. Lefebvre × Prince Camille de Rohan, and nearly intermediate between the parents; and the Rev. A. Cheales (Cranston), are all promising, and will probably appear again on the scenes.

I had almost omitted the new Teas *Madame Lambard* (Lacharme, 1877) and *Innocente Pirola* (Veuve Ducher, 1878), both of which were well shown. I did not, however, observe *Madame Welche* (of the same raiser, 1877), which has proved with me a fine hardy Tea.

Mr. Bennett's seedling Hybrid Teas were not largely exhibited; but Mr. Prince, who as usual was foremost amongst the Teas, showed me fair blooms of *Viscountess Falmouth* and *Beauty of Stapleford*. These Roses as grown at the Experimental Garden on the standard Briar, notwithstanding they have the growth and wood of the Teas, have proved themselves hardy and free growers. With only slight protection they survived the past winter where most of the Teas succumbed. They are also showing bloom finely.—T. LAXTON, *Bedford*.

STRAWBERRIES FOR FORCING.

RUNNERS layered in small pots will now be well rooted and ready for placing in the fruiting pots, which for the early varieties, such as *Pioneer*, *Vicomtesse Hericart de Thury*, and *La Grosse Sucrée* should not be larger than 6 inches in diameter, 5 inches answering very well; but for stronger-growing sorts, such as *President* and *Dr. Hogg*, 7-inch pots are suitable, especially when the plants are not required to afford fruit before May or June, otherwise an inch less size of pot is preferable. A rather strong friable loam, the top 3 inches of a pasture taken off with its turf in spring and stacked, chopped up moderately small, adding to every six barrow-fuls one of decayed manure, a sprinkling of bonemeal in place of sand, the whole being thoroughly incorporated, forms an excellent compost. The pots should be clean both inside and outside, one large crock being placed over the hole, and about an inch of smaller crocks will be sufficient drainage, placing the rougher portions of the compost over it. The soil beneath and around the ball of the plants should be rammed hard, keeping the plants rather high in the pots, but the soil should be kept about three-quarters of an inch below the rim to admit of efficient watering. After potting place the pots in an open situation upon a hard base, ashes answering very well, and allow sufficient space between the plants for the due exposure of the foliage to light and air. With proper attention in watering, the removal of runners and weeds, the plants will grow vigorously and mature the crowns in good time, so as to become rested before it is required to place them in heat.—G. A.

A CHEAP PERENNIAL BORDER.

ABOUT this time last year I purchased and sowed a collection of seed of twenty-five perennials. With one or two exceptions the seedlings appeared thickly and grew strongly, and when large enough they were pricked out in a prepared bed. In October as many of the plants as I required were transferred to a newly dug border which I wished to devote entirely to perennials. The border is about 60 feet long and 8 feet wide, and with the assistance of a few dozen bulbs (*Tulips*, *Crocuses*, *Anemones*, and *Narcissi*), it has been gay since the end of March. My border cost me altogether less than £2, and yet it has been entirely satisfactory, although the soil is not rich and the position is very exposed.

I have now the following plants in bloom:—In the two back rows *Anchusa capensis*, which is one mass of blue flowers; it has been equally fine since the end of April, and bids fair to continue for another month; *Antirrhiums*, tall varieties of many brilliant shades of colour; perennial *Lupins* now commencing flowering,

besides many Foxgloves, some curiously marked, but none so beautiful as the pure white. Behind all these plants a row of Hollyhocks will come into flower in August, when other perennials begin to fade. In the front rows I have had a rich display of Polyanthuses, followed by the double Dutch Anemones and the late Tulips, Indian Pinks being just expanding their flowers. The edging plant employed is *Arabis albida*, which was very beautiful in early spring.

Altogether I am more than pleased with the success of my first trial with perennials, and if others feel inclined to follow my example they can have a floral treat for eight months in the year at little expense. I have not mentioned half of my plants. The most beautiful just now is, I think, the *Oenothera taraxacifolia* lutea, so favourably mentioned on page 474 of the last volume of the Journal; mine are planted next to the *Anchusa capensis*, and the contrast between the bright blue of the one and the rich yellow of the other adds much to the beauty of the border. I have, I think, thirty distinct colours and markings in my Sweet Williams, all from one small packet of seed.—P. C.

CARNATIONS AND PICOTEES—SETTING-UP AND JUDGING.

A FRIEND of mine, speaking on the subject of setting-up the flowers for exhibition, says that if prizes are to be won on the exhibition table they must first be won with the flowers in the mind's eye of the exhibitor when on the plants. This to young growers is generally the great difficulty, as they frequently cut flower after flower, thinking each one the best, until the number grows so large that it is nearly impossible to decide which are the best flowers. In many cases some of the best are left out, where if a little calculation or forethought had been employed not more than one-third of the blooms need have been cut. Before cutting the flowers it is always best to calculate how many flowers may be required. In selecting the flowers it is not always wise to take the largest, as size alone will not win, and it generally happens that if a flower is large it is old as well, and will frequently collapse before coming to the exhibition table. The consequence is that most probably the stands will have to be rearranged, because, as will often occur, a flower of a different class has to be substituted in the place of the one collapsed. My advice is always to select bright young flowers, as they will continue to grow and improve after being cut.

Before cutting the flowers it is a good plan to make out a list of the blooms required in their different colours, cutting each lot separately before proceeding to cut the others. Let the full number of flowers be dressed and carded before proceeding to arrange the stands. The corner flowers should be the best in the stand, as they are always most seen. The following is a good method of setting-up a stand:—In order to have the different varieties or colours of the flowers, so as to act as a foil or contrast to each other, it is always best if a high-coloured flower, say scarlet bizarre or crimson bizarre, is followed with a pale or soft-coloured one; as for instance pink and purple bizarre, rose flake, or purple flake.

STAND OF TWELVE CARNATIONS.

Scarlet Bizarre	Rose Flake	Crimson Bizarre	Purple Flake
Scarlet Flake	Purple Flake	Scarlet Flake	Scarlet Bizarre
Pink and Purple Bizarre	Scarlet Bizarre	Rose Flake	Crimson Bizarre

The above was the mode in which a stand was exhibited at one of our National exhibitions. I thought at that time it was one of the handsomest stands I ever saw. If, however, a flower of super-excellence is amongst the lot I prefer placing it in one of the middle tubes in the top row if a flower of large size, or in the second row if of medium size. This is a strong point in exhibiting a good seedling, and is practised by all the leading growers. In setting-up Picotees the four corner blooms should if possible be heavy, at the same time a heavy flower should be always followed with a light or medium-edged one. The following were exhibited in a stand at one of our National exhibitions, and in my opinion left nothing to be desired:—

TWELVE PICOTEES.

Heavy Red	Light Rose	Medium Red	Heavy Purple
Light Rose	Heavy Purple	Heavy Rose	Light Red
Heavy Purple	Light Purple	Heavy Red	Heavy Rose

After placing the flowers in the stands it is necessary to examine them carefully to see that they all face one way, and stand at a uniform height or nearly so, as the flowers show to greater advantage. It will always occur that some flowers will be some-

what flatter than others, and be lower. It is a good plan to prop up the low flowers by placing something under the card—say a little cotton wadding, or even paper, so as to elevate them to the height of the others in the stand. The water in the tubes should be fully 1 inch or more from the top of the tube, so that it will not get into the calyx amongst the petals or wet the collars. Many growers have holes pierced through the sides of the tubes, so that the water may run off to the depth before stated. Never use a dirty or coloured card, as they always spoil the effect of the white in the flowers, whilst a card which is creamy always spoils the appearance of a light Picotee. The best place I have found for obtaining the cards is from G. Meek, Crane Court, Fleet Street, London.

Judging.—In judging stands of flowers, as defined by Mr. Dodwell, errors may and will be easily committed if the flowers are judged by comparing one flower with another, owing to the manner in which the flowers are placed. Taking Mr. Dodwell's illustration. "Suppose that two stands—A and B, each consisting of six flowers—are to be judged, and that each figure underneath denotes a flower and its degree of merit. If they chanced to be placed in the first position they will be equal.

A	.....	3	.....	2	.....	4	.....	3	.....	4	.....	5
B	.....	3	.....	2	.....	4	.....	3	.....	4	.....	5

But take the same flowers, and change their positions thus:—

A	.....	3	.....	2	.....	4	.....	3	.....	4	.....	5
B	.....	4	.....	3	.....	5	.....	4	.....	3	.....	2

It will be seen that B gains on four flowers, and A only on two, consequently the award is given to B; but similarly change their position again, and A gains on four, B on two; therefore the award goes to A. This is radically wrong in principle, and therefore must lead to error in practice. The sound rule is to compare each collection as a whole with its competing collection, and to determine its place by the result. Of course into this comparison analysis would enter, as it enters into the determination of the merit and place of the individual flower, which wins its place when rightly judged, as it is found to contain the higher quality, the better growth, the more symmetrical form, the brighter colours, the better markings, and the greater variety."

Selecting the premier flower in a collection is one of the most difficult tasks a judge has to undertake, and one that requires most care. In large exhibitions, as the National for instance, where there are perhaps two or three sets of judges, each set should be requested to select the best flower in the collections which they have judged and to mark the same, so that they can be easily distinguishable by the judges who may be appointed to define the premier bloom. As the judging for premier is now done it is a wonder to me that ever a premier is found, besides delaying the opening of the exhibition. The mode as practised now is for the judges and exhibitors to go in a body seeking through the stands for a premier, when the chances are that what is premier will be passed by. Take for instance the judging at the National Exhibition last season. The premier flower beyond doubt was a seedling scarlet bizarre of Mr. Dodwell's called Robert Lord, a magnificent flower, perfect in colour, form, and marking, particularly good in all points, and for a scarlet bizarre of good size; whilst the flower to which the award was given only surpassed it in size. Its faults were deficiency of flake and broken markings when compared with the markings of Mr. Dodwell's flower. It is very rare indeed that a flake is capable of winning a premier prize against a bizarre, and as yet it is only in the scarlet bizarres that we can with certainty count on finding the best flower in the exhibition. The crimson bizarres generally, although having fine colours when newly raised, are very liable to become patchy in colour as the variety becomes older. Take for instance Eccentric Jack—the best of Wood's batch—how rarely is a really good flower of it seen. One time it is pale in colour, deficient in bizarre, or perhaps some petals are deficient of nearly both the colours. I hope that we shall before long have a crimson bizarre sufficiently good and constant to win first honours, and prove a second Admiral Curzon in its class, which up to now has won more premiers than any other variety; and yet, although fast approaching forty years of age, with me last season it produced flowers as fine as I ever remember to have seen them.

In judging for the premier bloom in Picotees it is a much easier task to select the best. The points to be noted are pure white grounds, broad smooth-edged petals, with a broad solid band of colour running evenly on the edge of each petal, and free from spots or bars if a heavy flower; whilst if a light one the colour should be solid on the edge without any break in it. This is generally the great fault of many of the light edges; they appear as if serrated on the edge, whilst it is only the colour which is broken. It is, however, generally amongst the medium-edged flowers that the premier flowers are to be met with. Take for instance Zerlina

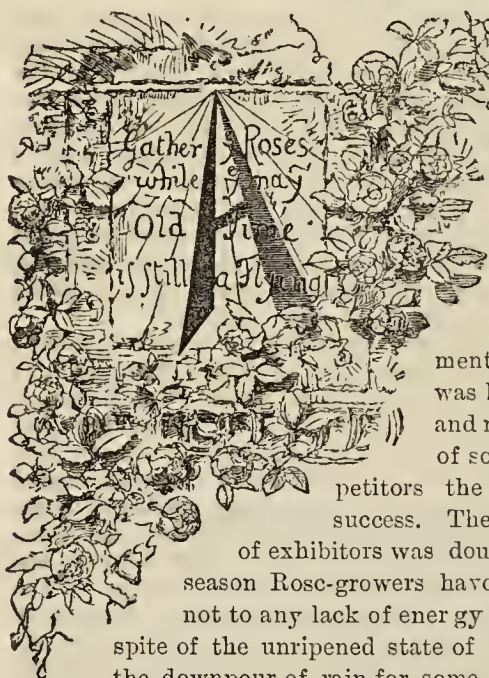
(Lord), which when in its best condition cannot be surpassed.—
GEORGE RUDD.

STRAWBERRY PAULINE.

OUR experience of this variety of Strawberry is very different from the description you give of it in your last number. We grew it three seasons, and as it did not improve we discarded it. It is early, and that is all we can say in its favour. It is ugly as regards shape, and as to flavour few would taste it a second time. We claim to have had some successful experience as regards Strawberries, having introduced such standard kinds as President, Dr. Hogg, Sir Joseph Paxton, Frogmore Late Pine, and others.—CHARLES TURNER, *Slough*.

[We stated that Pauline would possibly not succeed in all soils so well as at Cheshunt. The fruit sent to us from Cheshunt was just as represented in our engraving on page 53, and was for an early Strawberry delicious. It is evident that this variety does not succeed at Slough. Strawberries are capricious. We know a garden where even the free and useful President is worthless, and more than one where Dr. Hogg refuses to flourish; yet these are valuable varieties.—EDS.]

NATIONAL ROSE SOCIETY'S PROVINCIAL SHOW. MANCHESTER.—JULY 17TH.



AFTER such heavy thunderstorms as have lately prevailed it was not surprising to find that the lower petals in nearly all the blooms that were staged showed signs of the damage they had received during the early development of the buds. The Show was held in the Botanic Gardens, and notwithstanding the absence of some of the well-known competitors the Exhibition was a great success. The diminution in the number of exhibitors was doubtless due to the difficult season Rose-growers have had to contend with, and not to any lack of energy on their part. However, in spite of the unripened state of the wood last autumn and the downpour of rain for some days previous to the Show

the blooms were of exceptional quality both as regards size and colour. The Roses were arranged round the sides and ends of the large conservatory and on a table in the centre. Rows of small decorative plants were arranged between the classes so as to render the work of the Judges as easy as possible. The centre stage was arranged similarly with the addition of a row of larger plants down the centre of the table. The monotony that would have been displayed by a tent of Rose blooms was relieved by the system adopted; and the large plants, which also occupied various positions in the house, with quantities of creepers hanging tastefully from the roof contributed to the general effect. Dark Roses largely preponderated, and perhaps one of the finest collections ever exhibited at any exhibition of Alfred Colomb was staged by T. Jowitt, Esq., The Old Weir, Hereford; for colour, size, symmetrical outline and evenness, the blooms could not have been better. Messrs. Cranston and Co., Hereford, exhibited handsome blooms of their new Rose Mary Pochin, a fine, fresh, and excellent dark Rose, which was much admired. Mr. George Prince of Oxford staged Duke of Edinburgh in grand condition.

The schedule consisted of nineteen classes, six for nurserymen, eight for amateurs, and five open.

Nurserymen's Classes.—For seventy-two, distinct, single trusses, four collections were staged, the awards being in the following order—First, Messrs. Cranston & Co., King's Acre, Hereford; second, Messrs. Paul & Son, Cheshunt, Herts; third, Messrs. Davison & Co., Hereford; fourth, Mr. Wm. Rumsey, Waltham Cross. The first-prize collection contained some excellent blooms, fresh, fine in colour, large, and far ahead of any others staged in the same class. A few of the most conspicuous and noteworthy blooms were as follows—Mdlle. Marie Finger, La France, Marie Baumann, very fine; Mary Pochin, new, full, and a fine bright flower; Dingee Conard, Alfred Colomb, Niphotos, very fine, and perhaps the most magnificent bloom in the collection; Dupuy Jamain, Mdlle. Eugénie Verdier, Capitaine Christy,

Le Havre, Baron Haussmann, A. K. Williams, a beautiful bloom; Madame Lacharme, Mrs. Jowitt, a fine new Rose not yet in commerce; John Stuart Mill, Reynolds Hole, Etienne Levet, Souvenir d'un Ami, Comtesse de Serenye, Catherine Mermet, and Emilie Haushurg in fine condition. The second-prize blooms were much smaller, yet several were handsome, such as Souvenir d'Auguste Rivière, a very fine dark Rose; Marie Baumann, Brightness of Cheshunt, Comtesse de Choiseuil, a fine new Rose; Earl Beaconsfield, Annie Wood, Charles Lefebvre, one of the best coloured blooms in the Show; R. N. G. Baker, new; John Bright, Alha Rosea in beautiful condition; Camille Bernardin, Jean Ducher (Tea), Charles Darwin. The third-prize lot was also a good one. Sénateur Vaisse, Horace Vernet, Louis Van Houtte, Alfred Colomb, Reynolds Hole, Xavier Oliho were amongst the best blooms. The fourth collection had evidently been much dashed with the rain, and many of the blooms were small. For forty-eight, three distinct trusses of each, first, Messrs. Paul & Son, Cheshunt; second, Messrs. Cranston & Co.; third, Messrs. Davison & Co. Good blooms were staged, and the first and second collections were very near, and proved a difficult task for the Judges. The first lot contained fine blooms of Magna Charta, Charles Darwin, Catherine Mermet, Maurice Bernardin, Camille Bernardin, Niphotos, Marguerite Brassac, and Ferdinand de Lesseps. The second-prize stands had good blooms of A. K. Williams, Niphotos, Souvenir d'Elise, La France, Marie Van Houtte, Lord Macaulay, Duke of Edinburgh, Horace Vernet, and La Duchesse de Morny. In the third lot were fine blooms of Mons. E. Y. Teas, La Rosière, Auguste Neumann, and Comtesse de Serenye.

In the class for twenty-four distinct varieties, three trusses of each, Messrs. Cranston & Co. were again first, Messrs. Paul & Son second, and Messrs. Davison & Co. third. The other collection in this class was staged by Mr. Prince, Oxford, whose Roses were much injured by some delay on the line, and in consequence he had to discard many blooms that would otherwise have been shown, and doubtless strengthened his position. In the first-prize lot Beauty of Waltham, Exposition de Brie, Princess Mary of Cambridge, and Princess Beatrice were good; in the second stand Charles Darwin, Duke of Teck, and Dr. Andry; in the third Charles Crapelet and Duke of Wellington. In the class for twenty-four, distinct, single trusses, Mr. J. Griffiths was first with very fine blooms of Beauty of Waltham, Sir Garnet Wolseley, Mons. E. Y. Teas, Sénateur Vaisse (a very fine bloom), Louis Van Houtte, Madame Charles Wood, and a fresh and fine large bloom of May Quennell. Second, Messrs. G. Bunyard and Co., Maidstone. This collection had good examples of Richard Wallace and Edmund Wood. Third, Mr. Henry Frettingham, Nottingham. A bloom of Mabel Morrison in this stand was much admired. In the class for eighteen, distinct, single trusses (local nurserymen only), Mr. Yates, Heaton Norris, was the only exhibitor, and his stand was only considered worthy of a second prize. In the class for twelve Teas or Noisettes, distinct, single trusses, first Messrs. Cranston and Co. with a good even collection. Niphotos was a fine bloom; and Madame Lamhard, Souvenir d'un Ami, America, Souvenir de Mons. Paul Neyron, Jean Ducher, good. Second, Mr. G. Prince with even blooms, including a good example of Souvenir de Madame Pernet, Souvenir d'Elise, Madame Berard, and Alba Rosea. Third, Messrs. Paul and Son, Cheshunt, Gloire de Bordeaux and Belle Lyonnaise being the best blooms.

Amateurs' Classes.—In the class for thirty-six, distinct, single trusses, Mr. T. Jowitt secured the premier award with highly meritorious blooms. The following were beautiful in form and colour—viz., Alfred Colomb, Le Havre, Exposition de Brie, Comtesse de Serenye, Camille Bernardin, Beauty of Waltham, Louis Van Houtte, A. K. Williams, and Maréchal Niel. Second, Mr. G. P. Hawtreay, Slough; Harrison Weir was a very good bloom amongst many others. No third. In the class for twenty-four, distinct, single trusses, first, A. G. Soames, Esq., Bourne, with a very good collection, including Etienne Levet, Sir G. Wolseley, Charles Lefebvre, and La Rosière. Mr. T. Jowitt was a good second, and had fine flowers of Fisher Holmes and La Duchesse de Morny. Third, Mr. G. P. Hawtreay with good blooms of Anna Ollivier and Madame Verlot. Fourth, J. B. Hall, Esq., Rock Ferry, with rather small blooms. In the class for twelve, distinct, single trusses, first, Rev. J. H. Pemberton, Havering-atte-Bower, with very fine blooms. Second, E. R. Whitwell, Esq., Barton Hall, Darlington. Third, Wm. Stubbs, Esq., Broad Lane, Nantwich. For six, distinct, single trusses, E. Mawley, Esq., Addiscombe; Wm. Stubbs, Esq., and W. Walters, Esq., Burton-on-Trent, secured honours in the order named. For six, distinct, single trusses of district-grown Roses, first, James Brown, Esq., Heaton Mersey (gardener, Mr. G. Gass); second, Wm. Brockbank, Esq., Didshury; third, J. Davenport, Esq., Altrincham. For twelve Teas or Noisettes, distinct, single trusses, first, Mr. G. P. Hawtreay with very fine blooms, such as President, Caroline Kuster, Marie Van Houtte, Jean Ducher, Adrienne Christophe; second, Mr. A. G. Soames. Catherine Mermet and Caroline Kuster were again good. For six Teas or Noisettes, distinct, single trusses, first Rev. J. H. Pemberton; second, Mr. T. Jowitt. For six new Roses, distinct, single trusses, not in commerce previous to 1877, the only box was staged by Mr. G. P. Hawtreay, and he was awarded the first prize. The blooms included Countess of Rosebery, Harrison Weir, Richard Laxton, La Coquette, A. K. Williams, and Beauty of Stapleford.

Open Classes.—Twelve new Roses, distinct, single trusses, not in commerce previous to 1877.—First, Messrs. Paul & Son, Cheshunt,

with Penelope Mayo (full and good), Comtesse de Choiseuil, A. K. Williams, Constantin Tretiakoff, Magna Charta, Madame Gabriel Luizet, Charles Darwin, Leon Renault, and Paul Jamain. Second, Messrs. Cranston & Co. with Madame Chiverot, Mary Pochin, Princess Charlotte de la Tremouille, Wilhelm Kœlle, Duchess of Bedford; the remaining varieties the same as mentioned above. Third, Messrs. Davison & Co. with a good bloom of Pearl and Mrs. Laxton. For twelve single trusses of any Hybrid Perpetual (dark).—First, Mr. T. Jowitt with Alfred Colomb as alluded to above. Second, Messrs. Cranston & Co., with an excellent box of Marie Baumann. Third, Mr. George Prince, Oxford, with a fine box of Duke of Edinburgh. For twelve single trusses of any Hybrid Perpetual (light).—First, Mr. T. Jowitt with a magnificent stand of La Duchesse de Morny. Second, Messrs. Cranston & Co. with fine blooms of La France. Third, Messrs. Davison & Co. with much smaller blooms of La France. The other exhibitor was Messrs. G. Bunyard & Co., Maidstone. For twelve single trusses of any Tea or Noisette.—First, Messrs. Cranston & Co. with large fresh blooms of Niphetos. Second, Mr. G. Prince with Souvenir d'un Ami. For twelve single trusses of any yellow Rose the only exhibitor was Mr. Prince, who was awarded first with attractive blooms of Perle des Jardins.

Miscellaneous Exhibits.—Several boxes of Roses and some hardy shrubs in pots were exhibited by Messrs. Dickson & Robinson of Manchester; Messrs. Cranston & Co. exhibited a box of their new Rose Mary Pochin; Messrs. Paul & Son a very fine stand of A. K. Williams; Messrs. G. Bunyard & Co. a very good box of Ferdinand de Lesseps; Messrs. Davison & Co., White Cross Nursery, fine stands of Xavier Olibo and Marie Baumann. Mr. Samuel Barlow, Stakehill House, Chadderton, exhibited three hundred blooms of Persian Ranunculi, which attracted much attention.

Fortunately the day proved fine for the Exhibition, and large numbers of visitors assembled. Mr. Bruce Findlay efficiently conducted the arrangements of the Exhibition. The Judges were Rev. H. H. D'Ombraim, and Messrs. Jowitt, Hawtrey, Whitwell, Curtis, Cranston, G. Paul, Prince, and Herbert.

RHODODENDRONS NEAR LIVERPOOL.

SOME notes on Rhododendrons having recently appeared in the Journal, a few remarks as to how these handsome shrubs succeed near Liverpool may not be without interest.

There are not many places in Lancashire where they can be seen to greater advantage than at Grassendale Priory, the residence of Mr. Horsfall of Liverpool. Considering the very limited space at command, this collection, consisting as it does of over one hundred varieties, may be described as almost unequalled. The wet season of last year checked many of the specimens, the constant rain having produced a second growth when they should have been setting their flower buds, but still on the majority the trusses have this season been larger and in some cases more numerous than usual. Some of the largest were over at the time of my visit, and fallen and faded blooms of Alexander Adie and Old Port told of glories which were past for this summer. The latter, however, was well succeeded by Sir Joseph Whitworth, a large very dark variety with handsome foliage. There were several good specimens of white varieties in flower, of which Purity bore the palm both for size and colour, though some of the larger bushes of Minnie and Lady Godiva were very striking. About thirty new varieties have lately been planted, several of which promise to be unusually good. Surprise is a fine late one, with large light-coloured truss and dark-centred flowers; Kate Waterer, a splendid crimson with large yellow centre, one of the handsomest; Quadroona, Pelopidas, and Mr. John Kelk, all good pinks of different shades; while amongst the white and light-coloured varieties The Countess of Headfort, Butterianum, Lady Olive Guinness, and Madame Chasson were prominent.

It is difficult, however, to pronounce on the best of a collection which has been selected with so much care and judgment, every one having been chosen for some individual merit. Many besides those mentioned would prove ornamental additions to any garden; and as these shrubs may be moved with the greatest ease and safety (which their rapid growth frequently necessitates to prevent overcrowding), they may be truly called the most valuable evergreens we have. Most of those at Grassendale Priory have been moved at almost every season of the year, even in full flower, without deteriorating in any way; in fact one of the largest, a handsome white about 15 feet through and the same in height, was moved in flower two or three years ago, and made more growth the succeeding summer than it had ever done previously.

A standard Lady Godiva had over three hundred flowers fully out at the same time. It was placed in the position it now occupies last year, and is an excellent proof of the way Rhododendrons will succeed if carefully moved.—R. E. H.

DESTROYING THE ONION MAGGOT.—If your correspondent, W. Jones, will cover his Onion ground half an inch deep with coal ashes sifted through a half-inch sieve, and water at once with

liquid manure, and continue the watering once or twice every week unless the season is very wet indeed, I believe he will soon destroy the maggot.—D. WALKER, *The Gardens, Dunorlan.*

TWO KENTISH SHOWS.

DARTFORD.

THE annual Exhibition of the Dartford and District Horticultural Society was held on Wednesday, the 14th inst., in the grounds of Cranford Lodge, for which privilege the Society is indebted to C. T. Laurence, Esq. The entries were numerous, and the general quality of the exhibits was admirable, the plants being particularly noticeable for their freshness and vigour. Two tents were occupied with the gardeners' productions, one containing the plants, and the other the vegetables, fruit and cut flowers, while a third was devoted to the cottagers' classes. The arrangements were very satisfactory, and the whole conduct of the Exhibition was creditable to Mr. W. Etherington, the Secretary, and several energetic members of the Committee who ably assisted him.

Plants were well represented, several fair collections of stove and greenhouse plants being staged. Coleuses and the varieties of Begonias with fine foliage were also shown in excellent condition; the latter were exceptionally vigorous, and the former well coloured. Two fine collections of Cockscombs were exhibited, as dwarf as could be desired, with large richly coloured heads of flowers. Flowering Begonias were bright and effective. Several tasteful groups, Fuchsias, Ferns, fine-foliage plants, and numerous other plants contributed greatly to the pleasing effect of the tent. The chief prizewinners in the above classes were the following:—J. Honychurch, Esq. (gardener, Mr. Paris), A. H. Keep, Esq. (Mr. Bailey), R. White, Esq. (Mr. Collins), R. S. Dunbar, Esq. (Mr. Armstrong), R. C. Miller, Esq. (Mr. Hazell), E. A. Quail, Esq. (Mr. Manser), Mr. Preddy, and Mr. Ryder.

Fruit was not shown very abundantly, but collections of well-ripened Grapes, Peaches, Strawberries, &c., were staged by R. Stewart, Esq. (Mr. Etherington), J. C. Hayward, Esq. (Mr. J. Dean), and Messrs. Armstrong, Ryder, Collins, Hazell, and Manser, who were awarded the most important prizes in the classes. Vegetables were in excellent condition, the competition being very close, and the collections well made up. Potatoes were represented by several clean even examples. The successful exhibitors in these classes were J. B. White, Esq. (Mr. Westerook), and Messrs. Etherington, Dean, Preddy, Paris, and Bailey. Some of the best cut flowers and Roses were staged by Messrs. Etherington, Westerook, and Collins, the Roses being rather deficient in substance, but fresh and of good colour. The cottagers' exhibits were very numerous, and generally of exceptionally good quality. Vegetables, and particularly Potatoes, were remarkably fine, the latter even excelling those from the gardeners. Flowers, plants, and fruit were also very well shown.

The weather proved favourable, and numerous visitors attended the Exhibition; but the Society scarcely receives the support it deserves, although by judicious management the Secretary was able to obtain a small balance to the credit of the Society last year.

BEXLEY HEATH.

This Society held its fourteenth annual Exhibition on the same date as the above, and though it could not have been favoured with a more beautiful situation than Danson Park (the seat of A. W. Bean, Esq.), nor fairer weather, yet the exhibits were not very numerous, nor was the competition very keen in any of the classes. Several tents were, however, occupied with the contributions of gardeners and cottagers, the groups of plants filling the greatest portion of the space, and constituting the chief attraction. The tents were placed in a part of the Park which slopes down to an extensive lake, the ground rising beyond being densely and picturesquely wooded. The scenery was charming, and was evidently as much appreciated by the majority of the visitors as the Exhibition itself.

One of the chief groups of plants was that from A. W. Bean, Esq. (Mr. G. Taylor), which occupied the centre of a large tent, and contained some handsome specimens, a Croton variegatus being especially noteworthy for the rich colour of the foliage and vigour of the plant. C. A. Ionides, Esq. (Mr. Tomlin), also contributed a large and elegant group, comprising good Ferns, Dracanas, and Cockscombs. Both these groups were not for competition, being generously staged for the benefit of the Society. Mr. R. Smith, East Wickham, won the chief prize for a collection of Pelargoniums with well-flowered plants, a group comprising numerous varieties being also staged by the same exhibitor. The principal prizewinner in the classes for Fuchsias, Ferns, and many other plants was Mrs. Arbuthnot, Bridgen Place (Mr. Mitchell), who was awarded a large number of premier prizes for healthy well-grown plants. W. C. Pickersgill, Esq., Blendon Hall (Mr. Moore), sent a large group of plants not for competition, among them being a fine specimen of Dendrobium Farmeri with two large racemes of flowers. Cut Roses were bright and of fair quality, the chief exhibitors being the Rev. J. M. Fuller, Bexley; Mr. J. W. Todman, Chatham; the Rev. H. Johnson; and Messrs. Williams and Robins.

Fruit was well shown by Mr. Mitchell and T. Friend, Esq. (Mr. Wilcox), the latter, in addition to various collections and single dishes, staging several healthy well-fruited Peach trees in pots. Vegetables were fresh and good, those from J. G. Batchelor, Esq. (Mr. Foster), C. Graham, Esq. (Mr. Sewell), and Mr. Mitchell securing

the chief awards. The cottagers' productions were abundant and of good quality.

STENACTIS SPECIOSA.

MANY hardy herbaceous plants have recently been recommended as worthy of cultivation, and it is a little singular that the one

under notice has been apparently overlooked. It is a good old border plant, free and distinct, and once established needs little attention. We recently found it flowering in good condition in the kitchen garden at Southill Park, Bedfordshire, the seat of Samuel Whitbread, Esq., M.P., and were informed by the excellent gardener (Mr. Landers) that it is much esteemed for vase



Fig. 16.—STENACTIS SPECIOSA.

decoration. It grows freely in any ordinary garden soil. The colour of the flowers is bluish purple, and the height of the plant about 3 feet. It is readily increased by division, also by seeds, which if sown early produce flowering plants the same year. The engraving represents a spray from the plant above referred to.

GARDENS ON ST. SWITHIN'S DAY.

GARDENS begin to look sad and sodden. Most seeds have germinated fairly. A little more sunshine, a little less rain, and

a higher temperature than we have enjoyed in June for two or three seasons have done much to encourage Nature. The fields are now full of promise without, and beds and borders looked clean and hopeful. Small fruits were never more abundant. Strawberries are profuse and well flavoured. Caterpillars are committing terrible havoc amongst the Gooseberries and Currant trees, and the greater part of the extraordinarily luxuriant crops cannot come to perfection in some places from loss of leaves. Plums are a variable crop; Apples also; Pears generally a failure; also Apricots and Peaches. The rainfall of the last two days has been

disastrous, accompanied as it has been with almost continuous though distant thunder, and a most depressing thick atmosphere. The Rose blooms are ruined, and the trees are already making too much wood. In my small collection many, however, have yet to bloom, and only here and there have any of the new, planted last autumn, put in an appearance.—A. M. B., *Mid-Lincoln*.

THE HOLLYHOCK.

Of all the flowers of autumn none are more stately than the Hollyhock; and from a decorative point of view, no less that from that of the florist, it has been missed from many a garden during the last few years. Everybody who has cultivated the Hollyhock knows the fungoid disease which attacks it and shrivels up leaf and stem, and it is one of those diseases which seem to have baffled all ingenuity. I have heard of three instances where it has been said to have been successfully combatted, but am afraid that the success was somewhat doubtful. Having bought a small collection of named varieties this spring, which were stated to be perfectly clean, but the disease was very soon apparent. They were planted in the best ground in the garden, and I have been trying to keep down the fungus ever since. This is how I have managed: If any leaf has shown the disease very badly it has been taken off, but on those leaves where only a few fungoid spots have been found the portion affected has been removed and immediately burnt. So far the plants have thriven, and are as clean as can be expected.

Owing no doubt to many of the lower leaves having been removed, a more than ordinary number of shoots are growing out from near the base of the plants. These will be taken off with a portion of the main stem attached and struck. Hollyhock cuttings strike very well in a northern border out of doors at this season, but I will give them the benefit of a cold frame, where the process is quicker. Later on, should the spikes prove weakly, I shall cut up the stems into pieces like Grape Vine cuttings, only keeping the leaf which belongs to the lead intact if possible. These strike root readily inserted in light soil and covered with a frame. When they are fairly struck they will be potted into 4-inch pots and wintered in a cold structure. The old stools by autumn will have grown. These will be lifted and placed in pots of a suitable size, and in a cold house will commence moving in February. By the end of that month the young growths will be grafted on pieces of roots and potted into 3 or 4-inch pots and plunged in a mild hotbed, being placed in the ground by the beginning of April.

I would advise those in the same position with regard to plants to try some such means as indicated above to raise a stock of healthy plants free from disease.—R. P. BROTHERSTON.

HERBACEOUS PLANTS AND BEDDING-OUT.

WE rarely meet one who is thoroughly satisfied with his gardens or flowers, otherwise there would be no occasion to change—no need for projected variety next year; no need for fashion in gardening, a subject on which I recently read a very interesting article from "WYLD SAVAGE." The fashion in gardening is at present changing from bedding-out, carpet bedding, and sub-tropical gardening to herbaceous gardening, but the persistent admirers of bedding plants have the almost certain consolation that a change will occur again. In a humble way I am an earnest grower of border and herbaceous plants. I have twenty beds and several borders more or less filled and more or less gay during ten months out of twelve. I am certainly not prepared to spend £100 a year on them like "WYLD SAVAGE." Like thousands of your readers my flowers only receive my attention after business hours, and a passing look in the morning. And this induces me to remark that I believe such people return to their garden and garden favourites with much greater zest than those who are masters of their own time, and can spend the whole day in their gardens if so inclined. I am, however, fortunate in having an unlimited supply of manure, many kinds of soil, and the general garden requisites, and do not come short of willing assistance; but allowing any second person to dig or hoe at random would mean death to some of my special favourites. I have heard some ladies and gentlemen complain that they find much difficulty in inducing gardeners to take an interest in herbaceous plants which they consider weedy and fugacious.

To secure a reasonable success in the culture of herbaceous plants time and patience are indispensable, besides a taste for collecting good old plants and industry and intelligence in propagating them, and even all this will be insufficient without constant care and supervision. A man who may make a great display with bedding plants in summer may not succeed at all with

herbaceous plants. The success I refer to is to have your beds always full; to have a young stock from seed, division, cuttings, &c., to take the place of the old; and without being too particular about effect to secure it wherever you can, always studying time and place, with height, colour, and duration of the flowers. This has only to be done once a year for Pelargoniums and other bedding plants; it is a constant study when a number of beds have to be always filled and always gay with annuals or perennials.

I will now briefly say generally how my beds and borders are occupied. The borders are edged with Box because it is clean, easily regulated, and trimmed, and always looks neat, but it has the disadvantage of harbouring slugs and answering as a sure refuge for weeds that are not easily eradicated. The front line is occupied with six varieties of Daisies, which have flowered freely for the past three months, and will shortly be divided and replanted. Immediately behind and designedly intended to overshadow them is a continuous line of *Viola Magnificent*, deep purple and very effective. This will extend ultimately to the Box, and cover the space occupied with Crocuses, Narcissus, and *Anemone coronaria* in variety, which gave a glorious mass of brilliant bloom since March last. Those spring bulbs I do not intend to move this year, but shall mulch or top-dress when cutting-in the *Viola* in autumn with leaf soil and comminuted hotbed manure. The next lines on both sides are a fine display of *Campanula Medium calycanthema* in various colours, and forming perfect pyramids, a mass of bloom about, and 20 inches high. I have thinned out the superfluous shoots, and this makes the plants much finer. Next year I purpose having a line of *Campanula persicifolia alba fl.-pl.*, which is perhaps at this season one of the best bouquet hardy white flowers, being symmetrically shaped, as double as a white *Camellia*, and lasting long in beauty. I have it flowering now finely in an inside bed. Behind the *Campanulas* are various plants designed to take their place when their bloom begins to fail, such as Dahlias and *Gladiolus* in variety, the spaces between the plants being occupied with *Mimulus* in variety, which I do not consider sufficiently appreciated, as I know few hardy flowers so brilliant or produced in such profusion. Double striped and crimson *Potentillas* are good, as also are double dwarf scarlet *Tropæolums*, a plant not so common as it ought to be; striped *Petunia*, *Myosotis dissitiflora*, *Alonsoa grandiflora*, *Convolvulus tricolor elegans*, Dwarf Alpine Phlox, *Linum flavum* and *L. sibiricum*, with dwarf Roses on their own roots. These are all low-growing, hardy, and look out finely from between and form a base covering for the Roses, Dahlias, and *Gladiolus*, and have their flowers partially and judiciously shaded by the *Campanulas*. Immediately at the back is a continuous line of selected *Polyanthuses*, which are of great value in spring. I have thus tried to notice what has been in those borders, what is in them at present, and, except to include bulbs, what I hope to have there in winter and spring.

I have little space to notice the bed occupants, but a few lines will enable me to note what is already blooming or preparing so to do. All the hardier varieties of Tuberous Begonias I have are bedded out, and even some of the caulescent forms which I found had green fly in the young curled leaves. The change has quite restored them, and the hint may be useful to some of your readers who may be coddling those plants inside. I have propagated a number of varieties of Fuchsias; a bed of them now forming their flower buds I expect to be one of the finest I shall have. Also flowering are Rose Campions, striped *Antirrhinums*, Pinks, Sweet Williams in variety, *Aquilegia cærulea*, *A. glandulosa*, and *A. chrysantha*, Verbenas, Stocks, Pæonies, Lilliums in variety, perennial Lupins, single and double scarlet *Lychnises*, *Pentstemons* in various colours, *Ranunculus* of sorts, Alpine Veronicas; and to this I may shortly add a special favourite, *Dianthus Heddewigii* Eastern Queen and Crimson Belle, Asters, Scabious, blue Salvias, Portulacas, and Irises, which from their great beauty I wish were less limited. Others with greater means will have rarer and better plants.—W. J. M., *Clonmel*.

[The flowers of *Campanula persicifolia alba* you have sent are very double, pure, and beautiful.—EDS.]

THE TEACHINGS OF NATURE IN GARDENING.

It is a common, and I fear too often a just, complaint against flower shows, that they induce our gardeners to give all their time to the growing of grand specimens for exhibition, to the neglect of what we may call landscape or picturesque gardening. This should not, and I think need not, be the case. We are undoubtedly indebted greatly to flower shows, not only for a great improvement in many florists' flowers, but also for bringing together true lovers of flowers to their mutual benefit. The two pursuits have separate ends, but may well be followed together to the advantage of each. For producing effect, no matter how

large or how small our plot of ground may be, let us aim high, and not be content with perpetual strivings to have our garden as gay as our neighbours'. Go at once to the fountain head—to Nature herself; let us study hedgerow banks and shady lanes a little more, to see for ourselves what it is that produces such lovely effects. We should, I fancy, derive more enjoyment from our gardens, and with half the expense and trouble.

As an instance of Nature's teaching in my own experience I may mention that some years ago I made what we call a Swiss bed upon the lawn—*i.e.*, an oblong flower bed raised in three terraces, one above the other, kept in shape by larch poles split in half, the rough bark outside. When finished, the bottom terrace was planted with an edging of *Cerastium* and the orthodox *Pelargoniums* and *Calceolarias* behind. The second row had an edging of *Lobelia* and a smaller *Pelargonium*; the highest bed had *Fuchsias* alone. The whole effect I believe was fashionable but never picturesque, as may be judged from the fact that one individual compared it to a coffin. Other disappointments followed: the *Fuchsias* could not be kept moist enough to thrive, and the *Lobelias* refused to hide the wood of the second terrace.

In autumn white *Arabis*, with bulbs and other spring flowers were planted, and a few Ferns set on the shady side, and partly from illness, and partly from no longer taking pleasure in the structure, it was entirely neglected, and Nature succeeded where Art had failed. For many years now no part of my garden gives more pleasure than this bed. The Ferns took entire possession of all the shady side, seedlings springing up all over the woodwork. On the sunny side the white *Arabis* has covered the whole from top to bottom, not leaving a scrap of wood or soil to be seen, making for two or three months a snowy mound, and the rest of the year a pretty grey background in which can be placed any number of plants in pots, the pots being completely hidden.—C. A. K.



We are gratified to be able to announce that the Council of the Royal Horticultural Society have awarded the large gold Flora medal to MR. JOHN DOMINY in recognition of the distinguished services he has rendered to horticulture generally, and especially for the remarkable results he has achieved in hybridisation. This honour is well merited, and it could not have been conferred at a more opportune time, when Mr. Dominy is reported to be about to retire into private life.

— LAST year was most unfavourable for CARNATIONS AND PICOTEES. The flowering of the plants was of unparalleled lateness, and thousands of layers failed to root. Florists sustained great losses during the winter, and had to commence the present season with much weaker plants than usual or old stools. This was the case with the senior Honorary Secretary of the southern section of the National Society established for encouraging the cultivation of those flowers and the production of new varieties. Mr. Dodwell's losses amounted to three thousand plants, and it would not have been surprising if the display at Larkhall Rise, Clapham, had this year been only moderate both as regards extent and quality. By some means, however, the skill and energy of the veteran cultivator appears to have surmounted all difficulties, for he has nearly or quite a thousand pots of clean healthy plants, most of which are producing splendid flowers. These not only embrace the best named varieties in cultivation, but a great number of seedlings, not a few of which are of remarkable purity and brilliancy of colour. Many grand seedlings are now in full beauty, and will have passed their best before the Show, notably some magnificent scarlet and crimson bizzars and pink and purple flakes. This is unfortunate, but many others of high quality will probably not have lost their freshness by the date named, and there is good prospect of a fine exhibition, in which midland growers will have a favourable chance of successfully competing. The Exhibition will be held in the

Royal Horticultural Society's Gardens at South Kensington on the 27th inst., and will be worthy of the patronage of all admirers of these chaste, beautiful, and sweet hardy flowers.

— WE continue to hear of instances of the POTATO DISEASE occurring in various districts. The heavy rains accompanied with a rather high temperature have been favourable to the spread of the murrain, and if the storms continue the result can scarcely fail to be disastrous in many fields and gardens. Early varieties that have produced tubers of a good size should be taken up at once, even if the haulm is comparatively green. The tubers if spread thinly in an open shed will mature and soon be ready for storing; if it is not convenient to take them up the tops should be pulled up—not cut off as is so often recommended—and the Potatoes, although they will not increase in size, will mature in the ground. But the work must be done immediately the first specks of the disease are seen on the foliage or stems; a day's delay may render such work quite fruitless. Occasionally a few plants may be seen affected amongst the later varieties, the great bulk being untouched. The importance of promptly removing the tops thus affected cannot be too strongly urged, as it is the only means within the power of the cultivator of checking the spread of the destructive murrain.

— WE have received from Mr. H. Cannell of Swanley a box of PETUNIA FLOWERS GROWN UNDER GLASS, which are remarkable alike by their size, richness, and variety of colours. Many of the single flowers are 5 inches in diameter and of great substance, the colours represented ranging from pure white with faint purple bars to rich reddish purple and glowing magenta selfs. Some of the flowers are fringed and others smooth. Many smaller flowers of excellent form are not less beautiful, some of them being distinctly barred and others chastely reticulated. Even more striking are the double forms, some being purple heavily fringed, almost tasselled, with pure white; some being white in the centre with purple-margined white outer petals; some plum colour faintly margined with white; others purple, heavily margined; some blotched, some striped, and all beautiful. We have never seen finer flowers than these, and they represent a strain of undoubted excellence.

— WE are informed that preparation is being made for holding a great FLOWER SHOW AT THE ALEXANDRA PALACE on August 7th, at which bouquets and table decorations will form an important feature. Particulars of the Exhibition will no doubt be duly advertised.

— IN consequence of the unfortunate weather that prevailed during the LEEDS HORTICULTURAL SHOW, and the great loss thereby incurred by the Society, arrangements have been made for holding a supplementary Show to open on August 2nd. Such efforts of the Committee to retrieve their loss deserve the support that the inhabitants of the populous districts are sure to give if the weather permits them. A liberal schedule is issued, and we observe that two prizes of 2 guineas each are offered in an open class for one ball and one bridal bouquet.

— A CORRESPONDENT states that "A house has recently been erected for ZONAL PELARGONIUMS AT CLOVERLEY HALL GARDENS. It is a span-roofed structure with a bed in the centre and at each side, with a walk all round. The house is full of plants in 6 and 7-inch pots and in excellent condition; the trusses of bloom are of immense size and the colours bright. The collection comprises new varieties of recent introduction as well as old varieties of sterling merit. No plants are more worthy of a good house devoted to their cultivation either for summer or winter blooming. They are easy to manage and never troubled with insects. Mr. Jones is a successful cultivator of *Pelargoniums*."

— "W. B." writes that "The NEPENTHES AT HAWKSTONE GARDENS, SALOP, are most vigorous, the foliage luxuriant and fine, and the numerous pitchers are of an immense size. Mr. Pratt is very successful in growing and propagating Nepenthes. In the conservatory is a fine specimen of *Bougainvillea spectabilis*. In its present position the plant flower as freely as *B. glabra*, and the colour is much darker.

— A CORRESPONDENT desires to know the weight of the HEAVIEST PINE APPLE that has been grown in this country, with the name of the grower and the variety. We remember Mr. Fleming of Trentham exhibiting in the Regent Street rooms of the Horticultural Society a fruit of Providence weighing 14 lbs., and one of the Ripley Queen 7 lbs. 10 ozs. He afterwards cut a fruit of the Queen weighing 8 lbs. 11 ozs. We do not name them as the heaviest fruits recorded, but they are worthy of mention, and we shall be glad if any of our readers can give particulars of heavier fruits. As an instance of successful Pine culture it is recorded that a Mr. Baldwin, who was gardener to the Marquis of Hertford at Bagley, cut thirty-six fruits of Providence in 1822, which weighed 280 lbs. 4 ozs., the largest fruit being 11 lbs. 8 ozs. Mr. Bailey of Shardeloes has, we believe, also grown fruit of about the same weight.

— AT the late Wimbledon Show (a report of which, owing to the extreme pressure on our columns, we were unable to insert last week) there was, we are informed, a falling-off in the specimen plant classes. Ferns were good, Messrs. Nunns, Bridger, and Bentley securing the prizes. Zonal Pelargoniums were numerous, those from Mr. G. Legg, Worple Nursery, being of marked excellence. Table plants, which the Wimbledon gardeners grow so well, were as usual in fine condition, the prizes being secured by Messrs. Bridger, Bentley, Callard, and Law. Roses were an attractive feature, Messrs. Moorman, Gibson, Starr, Curtis, Dr. Booklees (who won the silver cup for amateurs), Coleby, Dixey, and Brown being the successful exhibitors. Lady Peck's prizes for cut blooms of herbaceous plants brought out good competition, Messrs. Fanning, Boylett, and Bridger being the successful exhibitors. Vegetables were superior, and wild flowers from Messrs. Ogden and Appleby pretty. The Exhibition was held in Mr. Schlusser's beautiful grounds at Belvidere House, and was well managed by Messrs. Appleby, Jordan, and Lyne.

— A RARE and very charming Orchid is now flowering in Mr. B. S. Williams' nursery at Holloway—*ANGRÆCUM SCOTTIANUM*. This species is quite distinct from all others, the leaves being narrow, not greatly exceeding an eighth of an inch in diameter, very stout, gracefully arched and channelled. The flowers are white, singularly pure and glossy; the lip being a little more than an inch in diameter, admirably formed and shell-like, the tail-like appendage being nearly 4 inches in length, slender and waxy. By its texture, purity, and elegance this species is a beautiful and noteworthy form of a diverse and remarkable genus of Orchids. It is a native of the Comoro Islands.

— AMONGST other Orchids flowering in the same establishment *CATTLEYAS GIGAS*, *VIRGINALIS*, AND *SUPERBA* demand notice. *C. gigas* is a magnificent variety, the colours being gorgeous and the flowers large. *C. virginalis* is a chaste white flower with a yellow lip, and remarkable for its powerful aromatic perfume. *C. superba*, a difficult plant to grow, is in superb condition, one spike having five richly coloured, smoothly massive flowers that command the admiration of all visitors. *Sobralia macrantha* is also fine; *Masdevallia atro-purpurea*, intensely rich; *Oncidium prismatocarpum*, powerfully Hawthorn-scented; *O. dasytyle*, curious by its creamy lip and nearly black bee-like centre; *Cœlogyne Massoniana*, very distinct by its pale buff sepals and chest-

nut brown lip; *Thunias Dodgsonii* and *alba* in excellent condition. The fine collection of plants not flowering—*Vandas*, *Cattleyas*, *Odontogloss*, and others—merit a word of recognition by their manifest health and cleanliness.

— SUSPENDED from the roof of one of the houses NEPENTHES attract attention by their great profusion of fine pitchers. Nearly all the best forms are represented, including the striking new *N. Outramii*. We never saw *N. Hookerii* finer than it is here; indeed, all the plants, which are not large, are remarkable for the great number, freshness, and colour of the pitchers. Fine as are the new Nepenthes now being distributed from the Victoria Nursery, there are others "on the way" that will prove worthy companions to them, and of which more will be heard in due time.

— MESSRS. DANIELS BROS., of Norwich, have sent us flowers of their NEW GIANT VIRGINIAN STOCK. The variety is very distinct and extremely attractive, the colour being very deep rosy purple; it is much the darkest variety that has come under our notice, and is a welcome addition to the other forms of this pretty annual.

— THE *Irish Farmers' Gazette* states that *DISA GRANDIFLORA* was one of the most noteworthy, as also one of the most attractive, plants at the Royal Horticultural Society's Show recently held in Dublin, and exhibited by the Rev. Frederick Tymons. Larger and finer specimens have come under our notice, but we do not remember seeing at a public exhibition so well furnished, well flowered, and symmetrical a specimen as that now alluded to, which had twelve spikes with an average of four highly coloured blooms each.

— ON the 13th and 14th inst. Mr. J. C. Stevens sold the COLLECTION OF ORCHIDS that Mr. Philbrick, Q.C., Avenue Road, Regent's Park, has been some years in obtaining. The following were the principal prices realised:—*Anguloa Ruckerii sanguinea*, 14 guineas; *Odontoglossum vexillarium*, 4½ guineas; *Dendrobium Wardianum*, 9 guineas; *Masdevallia Backhouseana*, £6 10s.; *Angræcum sesquipedale*, 19 guineas and 10½ guineas; *Aërides Lobbii*, 7½ guineas; *Aërides Schroderi*, 24 guineas; *Saccolabium Holfordii*, 19 guineas; *Saccolabium Blumei majus*, 11½ guineas; *Cattleya dolosa*, 11 guineas; *Lælia anceps*, 9 guineas; *Cattleya Trianae rubra*, 15 guineas; *Lælia anceps alba*, 14 guineas; *Sophranitis grandiflora*, 10 guineas; *Cattleya labiata*, 5½ guineas; *Lælia elegans Turneri*, 10 guineas; *Lælia Wolstenholmæ*, 14 guineas; *Cattleya gigas*, £6 10s.; and *Angræcum sesquipedale*, £6 10s. The total amount realised by the sale was £1075 19s.

— MR. FREDK. DURRANT succeeds Mr. Webber as gardener to Ambrose Isted, Esq., Ecton House, Northampton; Mr. J. WRIGHT succeeds Mr. Durrant as gardener to J. E. Cooke, Esq., Knowle Hill, Cobham, Surrey; and Mr. W. GURMAN, late of Springfield, Great Marlow, has been appointed gardener to R. Burrell, Esq., Fairthorne Park, Botley.

AQUILEGIA SKINNERI.

THE Columbines are deservedly admired by all growers of hardy plants, and the increase in the number of distinct and handsome forms within recent years now permits the acquirement of a large and diverse collection. The admirable results that have attended the efforts of some hybridisers are well known, and the numerous intermediate forms thus produced in some instances excel their parents in attractiveness. This is due to the peculiarly variable character of the *Aquilegia*, considerable diversity of colouring being easily induced by judicious crossing, and doubtlessly much more will yet be done in that direction by observant and persevering growers. One valuable quality of the Columbines is the readiness with which the majority can be increased either by seed or division of the plants, and their hardiness in many districts and their elegant habit of growth recommend them as desirable additions to the herbaceous borders.

One of the most beautiful species of the genus is *Aquilegia Skinneri*, which is represented in the accompanying engraving (fig. 17). This plant is a native of Guatemala, whence it was sent to this country about forty years ago by G. U. Skinner, Esq., after whom it is named. The first plants were received at Woburn Gardens, and there flowered for the first time in England. It was then

treated as a stove plant, being regarded as too tender to endure this northern climate without protection; but the weakly unsatisfactory plants obtained under that culture soon induced the adoption of a more suitable course of treatment, and it was found that the plant only displayed its real beauty in the border. Such is the position now usually accorded it, and if the soil be moderately



Fig. 17.—*AQUILEGIA SKINNERI*.

rich and well-drained, and the border somewhat sheltered and warm, the best results will be obtained.

The form of the flowers is well shown in the engraving, but the colour is the most striking quality, the sepals being green, and the long spur-like petals of a rich red tint, fading to an orange shade near the upper portion. The stamens are greatly protruded and they are terminated by large bright yellow anthers, the filaments being of a greenish tint. The stems of the plant are purplish,

and the elegantly divided leaves of a deep rich glossy green. It flowers during the present month.—R.

PEAS AND BEANS IN SUCCESSION.—We are now gathering Peas and Broad Beans from rows from which we have been gathering for more than five weeks. As soon as the first few blooms were open the plants were topped, which caused lateral growths

to issue from bottom to top of each stem, and these are now blooming and fruiting most abundantly—in fact the crop is much larger than that from the first main stems. Those wishing to save seed from any new or good variety of Pea or Bean should adopt this plan, as in good soil it more than doubles the produce.—
A KITCHEN GARDENER.

LA DUCHESSE DE MORNY ROSE.

I SHALL be glad to have the opinions of rosarians upon the following point—whether the above Rose should be shown as a light Hybrid Perpetual and gain honours against such light Roses as La France. Some comment evidently took place at the National Rose Society's Show, held in Manchester on the 17th, when La Duchesse de Morny was placed before La France. Some contended that this should not have been so, and that the Rose in question was not a light Rose. I ask, Can a Rose that answers to the description of "bright but delicate rose colour, the reverse of the petals silvery," be called a dark Rose? If so we might as well say Alfred Colomb and Marie Baumann cannot be called dark where such varieties as Duke of Edinburgh and Charles Lefebvre come. If I understand the schedule rightly Hybrid Perpetuals are divided only into light and dark, and no more minute distinction made. Under such conditions I think Mr. Jowitt is justified in exhibiting La Duchesse de Morny as a light Rose.—A LANCASHIRE GROWER.

ROYAL HORTICULTURAL SOCIETY.

THE following is an epitome of the lecture delivered on the plants exhibited at the last Meeting by the Rev. G. Henslow, Secretary to the Scientific Committee, and for which we had not space in our last issue. The first group of plants to which attention was drawn was a fine series of *Iris Kämpferi* from Japan, exhibited by Messrs. Veitch. The lecturer explained how the process of becoming "double" was carried out—first by the three inner petals, usually small, being much enlarged, an extra number of stamens appearing as small petals, and the style becoming more petaloid, so that probably by continued cultivation flowers resembling *Pæonies*, only purple, might be expected to be produced. The lecturer described the fertilisation by insects of the *Iris* and *Crocus*.

The chief display was made by *Begonias*, consisting of variations from hybrids between *B. boliviensis* and *B. Veitchii* and other species. Allusion was made to the tendency to change the sex; the stamens especially putting on stigmas, while one specimen exhibited showed the pistil surrounded by stamens. The stems of some species contain probably potassium oxalate, and are used like *Rhubarb*, and may also be employed like salts of lemon for extracting ink, though the juice is liable to leave a red stain instead.

A beautiful species of *Utricularia* and another of *Nepenthes* furnished materials for a short digression on the habits of the carnivorous species of those genera.

With regard to *Orchids*, a remarkable species of *Nanodes*—viz., *N. Meduse*, was exhibited by Sir T. Lawrence; *N. discolor* is another very small species about 1 to 2 inches high. A fine *Phalaenopsis* furnished an illustration of the fertilisation by insects, the caudicle of the pollinia undergoing a remarkable curving process, while at the same time they are depressed; the object being apparently to shorten the distance between the disk and pollen so as to hit the stigma more accurately and effectively.

Gloxinias furnished an illustration of reversion; for it is presumable that all irregular flowers were in their ancestral state regular, and horticulturists now endeavour to select those which assume an erect habit and regularly circular outline, in other words, which are reverting to the ancestral type.

Pelargoniums are remarkable for illustrating the fact that physiological differences are often more pronounced than morphological; for it is found that the forms with fine well-pronounced spots—i.e., one on each petal, will not cross with those possessing only two marked spots, the other three petals having none or faintly marked only. A similar refusal to cross resides in the Zonal *Pelargonium* and the smooth-leaved scarlet varieties.

SCHIZANTHUS AND LOBELIA ERINUS IN POTS.

IN a situation I held many years ago there was a conservatory which held about three hundred plants and had to be kept gay with flowers throughout the year. With the exception of some *Camellias* and a few others, all the plants were removed as soon as they had done flowering, and others coming into flower were brought from the vinery and a plant pit to take their places. Some plants commonly used as outdoor plants were grown in pots for this structure. None answered better or were more admired by my employers and their friends than the *Schizanthus*, which is a well-known annual, and *Lobelia Erinus* white and blue. Both were grown as annuals from seed sown in July, two or three plants being placed in a 4-inch pot as soon as they were large

enough. The plants were well exposed to light and air, were shifted into larger pots as they required it, and had good soil to grow in. About April they were finally potted into pots 11 inches in diameter. By May, when the *Schizanthus* plants began to flower, they were 3 feet or more in diameter and the same in height. When in full flower they were no mean ornaments for the conservatory and sitting-room, being pyramids of butterfly-like flowers. *Azaleas* and *Pelargoniums* flowering in the same house at the same time were not more admired than the *Schizanthus*. As the roots of the *Schizanthus* plants are brittle some care is necessary to keep the balls unbroken in shifting them into larger pots. In growing *Schizanthus* plants in pots the shoots should never be stopped by pinching their points off, and they seldom need training or tying. The varieties of *S. pinnatus* are the best for pot culture and show. *S. retusus* and its varieties I could never grow into fine plants.

Well-grown plants of *Lobelia Erinus gracilis*, blue and white, in flower are very charming. They come into flower about the end of May and last till August. With us they were treated like the *Schizanthus*, and grew into handsome specimens, measuring about 3 feet across; and by reason of their trailing habit of growth, their pots (11-inch) were quite hidden from view by foliage and flower. Two or three of such plants were grown annually, one-third of them blue, one-third white, and the other third blue and white together. The lady of the family I served liked the white plants very much, and had every year two of them in her sitting-room. By uplifting the tangled mass of shoots with her fingers she made her two plants look much larger and better than those in the conservatory; they were in shape somewhat like an umbrella fully expanded. *Lobelias* for pot culture should not be topped. *Lobelia speciosa* and some others are not well adapted for culture in pots, their growth not being sufficiently slender and pendulous.—A. PETTIGREW.

NOTES AROUND MANCHESTER.—No. 2.

DIDSBURY, a village three or four miles south of Manchester, is one of the most healthful and pleasant suburbs of that city, being situated in an open district comparatively free from the poison-vomiting factory chimneys which are so abundant in neighbouring and less-favoured localities. In consequence of this immunity from one of the greatest enemies to vegetation—viz., smoke, the plants and shrubs of all kinds have some chance of thriving and rewarding their cultivators for the care bestowed upon them. Residents have not been slow to take advantage of these opportunities, and all the numerous villas in the neighbourhood have gardens, varying in size and importance, but equally indicating by their neat fresh appearance the attention they receive. The majority merely contain lawns, shrubberies, and flower borders in the typical and somewhat formal style so prevalent in gardens of that character round London and large towns generally; but there are some occupied by gentlemen who have acquired collections of plants of considerable value and extent, and one of the most remarkable of these establishments I will now briefly describe.

BROCKHURST.

It is very doubtful if a better example could be found of the admirable effects that can be produced in gardens of moderate extent by the exercise of artistic ingenuity and care in their design and arrangement than is shown in the one under notice. Although by no means specially favoured in regard to position, except that the garden slopes down to the valley of the Mersey, yet it has been rendered both highly attractive and interesting. Mr. W. Brockbank, the genial proprietor, is a gentleman who has devoted much time and care to the formation of a collection of alpine and herbaceous plants, florists' flowers, &c., and he now possesses nearly eight hundred distinct forms, exclusive of a large number of *Auriculas*. Some of these are grown in houses and frames, but the majority are planted on the rockery, which forms the chief feature of the garden. Not content with the conventional heap of stones that passes for a rockery, Mr. Brockbank has succeeded in producing something which, if only on a moderate scale, has the merit of possessing some pretensions to naturalness. What may be termed the framework is composed of huge blocks of Rochdale flagstone arranged to imitate the stratification of rocks, and, being upon the steep portion of the incline, they are disposed so that they appear to be the natural outcrop of a geological formation. Smaller pieces are employed to fill-up and form sheltered nooks and corners suited to the various requirements of the alpine treasures that are planted in them. Paths wind about at different levels—not obtrusive, broad, gravelled paths, but in judicious accordance with the general design, which altogether is admirable and worthy of adoption by all who can obtain the necessary materials.

In another and lower portion of the garden a marshy position is turned to good account as a home for the various beautiful and interesting plants that frequent such localities, and their healthy condition testifies to the accuracy with which their requirements have been studied. On the slopes overshadowed by trees are Ferns in abundance thriving admirably, much as they are seen growing wild in a shady and woodland nook. Thus Mr. Brockbank imitates Nature as far as practicable in his gardening, and how successfully can only be adequately judged by those who have had the pleasure of visiting his beautiful little establishment.

To enumerate all the plants of interest contained in this collection would far exceed the space at my disposal, consequently I must confine my remarks to the most noteworthy. Spring flowering plants are largely grown, for not only are they very beautiful, but the soil at Brockhurst being of a sandy nature, renders it unsuited to summer-flowering plants, as during the hot season it becomes excessively dry in exposed positions. Spring flowers, however, succeed capitally, Narcissi being particularly luxuriant. Of these there is a fine collection, including many species and varieties, among which the beautiful *Lcedsi* forms are well represented. *Narcissus Horsfieldi* is grown in numbers, and produces a fine display when at its best. Primulas, however, receive considerable attention, and constitute what Mr. Brockbank terms his *spécialité*, although, judging by the fine condition of the plants generally, that would equally apply to all. Primroses of all kinds are grown in the greenhouses, frames on the rockery, and in the borders. The majestic *P. japonica*, the charming little *P. rosca*, and scores of others contribute their attractions; such fine forms as *P. cortusoides*, *P. integrifolia*, *P. viscosa*, *P. denticulata*, *P. farinosa*, *P. scotica*, *P. Munroi*, *P. cashmeriana*, and *P. sikkimensis* being well represented. A great number of forms of *P. acaulis* are also grown, and some are extremely beautiful, the shades of colour varying from white to rich crimson, the blooms being of great size and good form. Auriculas and Polyanthus are cultivated in quantity, the collection of varieties being especially fine. Among the latter are two rare forms that are greatly valued by florists—namely, Cox's Prince Regent and Maud's Beauty of England, which Mr. Brockbank prides himself upon possessing perfectly true. Many other plants are grown in the borders, bulbs, particularly Lilies, being very abundant.

On the rockery are hosts of charming plants, and some extremely rare. Very noticeable at the time of my visit were clumps of the beautiful *Saxifraga Wallacei*, which was flowering most profusely. Several other handsome species of the same genus were also remarkably fine, particularly *S. pyramidalis*, *S. nepalensis*, and *S. lantosca*. Globeflowers made an attractive display, including all the best forms in cultivation, and the rare dwarf variety of *T. europæus* called *pumilus*. One especially interesting plant was the Edelweiss, *Gnaphalium Leontopodium*, which has flowered this season and attracted much attention when exhibited at the Manchester Show. Aquilegias were strongly represented, no less than twenty-two varieties being grown. Mr. Brockbank's mode of treating these handsome plants is worth noting, for it appears eminently successful. They are all raised from seed, large numbers of young plants being thus obtained to keep up the succession. The seed from the old plants is also allowed to fall on the soil, and the plants thus produced are pricked off wherever required, generally in moderately rich soil. The value of *Doronicums* for flowering in spring has been recently referred to in the Journal, and at Brockhurst their qualities were admirably exemplified.

The lower portion of the garden or the "woodery" has already been briefly noted, and I have only to add that terrestrial Orchids thrive there luxuriantly. *Cypripedium spectabile*, *C. parviflorum*, and *C. Calceolus* I have rarely seen in such fine condition. They were flowering profusely, apparently quite uninjured by the severity of the past winter, which had affected surrounding shrubs and trees very seriously.

In addition to rockery, woodery, lawns, flower borders, &c., what may be termed the glass portion of the establishment is also well worth notice. Several houses are devoted to plants of various kinds, Roses in pots receiving considerable attention. Vines are well grown, and were at the time I saw them giving promise of an excellent crop. One house has been converted into a "natural" fernery, where Ferns, Selaginellas, and other shade and moisture-loving plants grow vigorously, much taste having been displayed in the construction and arrangement. The houses, although not large, are fitted up with all the latest improvements in the way of heating and ventilation, and prove highly satisfactory to the owner, and creditable to Messrs. Richardson & Co. of Darlington, by whom the majority were erected.

Such is a brief and inadequate description of Brockhurst, which for its size could scarcely be surpassed in beauty and interest; and

in conclusion I may remark that not only does Mr. Brockbank grow his plants well, but he also exhibits them well, as was indicated at the Manchester Spring Show, when he took high positions both with hardy plants and Roses in pots. Although he personally superintends his garden to a great extent, yet he is ably assisted by his head gardener, Mr. Morris, who enters fully into his master's love of plants.

Since the above was written I have received a description of the garden from Mr. Rogers, the Secretary of the Manchester Botanists' Association, whose visit to Brockhurst was recently recorded in the Journal. Mr. Rogers very ably indicates the principal attractions of the garden, and furthermore states that the excursion proved very enjoyable, owing to the cordiality of the worthy proprietor.—L. CASTLE.

COWSLIP, PRIMROSE, AND OXLIP.

MANY years since the late Professor Henslow raised all the above forms from the same plant. Amongst a lot of seedling Polyanthus I this year had a common Primrose. Coloured Cowslips not unfrequently occur in the marlstone coombes of this parish. I have lately stated that in one of the coombes a large patch of coloured Cowslips, some coloured like common Oxlips, occurred in the spring, and amongst them a decided crimson Primrose. The fine forms of Primrose raised by Colonel Clarke produce seed naturally here, and retain their original character.—SIBBERTOFT.

LECTURE ON THE PELARGONIUM.

BY SHIRLEY HIBBERD.

(Continued from page 14.)

THE Zonal race acquired importance subsequently to the large-flowering section. Those we collectively term "Zonals" were grouped by Sweet under the generic designation *Ciconium*, and the most important of this genus are *Ciconium zonale*, introduced in 1710, and *Ciconium inquinans*, introduced in 1714. These are the two parents of the race, no doubt, but their differences do not account for the fact that in the garden varieties we have every imaginable variation of leafage and of bloom. It is likely that *Ciconium reticulatum* of Sweet (143), a very distinct hybrid, gave the first touch to the variegation of the leaves, which has in recent years attained to such extraordinary development. In any case, this hybrid marks a distinct departure and appears well suited to be the founder of a race.

The "Nosegay" section is the oldest of the Zonals. The founder of this section is *Ciconium Fothergilli*, the figure of which by Sweet (226) would nearly serve to represent a good Nosegay of the present day, and it may therefore be concluded that the Nosegays have been less modified than the Zonals that represent *zonale* and *inquinans*.

Another early section is that with green leaves and pink flowers, of which we may consider Christine the modern type. This section is foreshadowed in *Ciconium cerinum*, which is admirably figured by Sweet (176). Here we have pubescent leaves and flowers of a soft rosy pink colour, the petals of which are beautifully rounded and nearly equal in size. Cultivators who remember *Lucia rosea* will have no difficulty in connecting the dwarf bedding Pelargoniums of the Christine class with this beautiful wax-flowered Pelargonium, which Sweet regarded as a true species.

The most famous of the Zonal section is the green-leaved scarlet bedder known as General Tom Thumb, a descendant of Frogmore Scarlet, and a competitor of Huntsman, Cooper's Scarlet, and many more that the General quickly vanquished from the field. This famous variety was raised by Mr. Willson, gardener to W. Pigott, Esq., of Dullingham House, Newmarket, about the year 1842. It is said that as a seedling it was condemned and handed over to some children to be tormented, and very soon found its way to a dust-bin. But by some accident it was dragged from the dust-bin and planted, and as the summer advanced it manifested its character, and secured its fame and many more admirers than Barnum's *protégé*. But many persons have some kind of claim to the honour of raising Tom Thumb, for there prevailed during some fifteen years—say from 1840 to 1855—a mania for raising scarlet Pelargoniums adapted for bedding; for those were the days of the horticultural scarlet fever, and many varieties nearly alike came forth from various quarters. Many of these passed for genuine Tom Thumbs, and many perhaps were quite as good. However, the original and true variety differed from most of the others in this respect, that it rarely ripened a seed unless it was artificially fertilised, when it was as prolific as any. This fact separates it far from Christine, which is an inveterate seeder. The leafage also puts them far asunder, for Tom has a smooth papery leaf of a yellowish green, and Christine has a thick soft leaf of a bluish green—one takes us back to *inquinans*, the other to *cerifera*, and Nature ordered the characters ages ago in the solitudes that stretch away drearily to the west of Cape Town.

The pink-flowered Christine was raised by Mr. F. R. Kinghorn of Richmond in the year 1852. The parents were Ingram's Princess Royal and an old pink Nosegay, which was formerly much used for training on walls and pillars. The peculiar softness and blue tone of

the leafage of Christine do not appear to be accounted for by the parentage, there being in it such evident traces of the *Cerinum* or *Monstrosum* of Sweet. Mr. Kinghorn, to whom I am indebted for its history, tells me that he very soon made note of its strong individuality, in which it seems to rise to the rank of a species, and reproduces itself freely and truly from seeds. During some fifteen years it was the most popular of all bedding plants, for it outran Tom Thumb at last. The beautiful Rose Queen, sent out in 1855, was one of the good things obtained by Mr. Kinghorn in the same batch with Christine. This has higher quality, but never proved so good a bedder, and therefore never attained to great popularity.

It would be unfair to omit all mention of the variegated-leaved varieties, because in a good bedding display they contribute features fully as important as the strong colours. They tone down and harmonise and divide. In the year 1844 there were very few variegated Zonals known, and only one with bright scarlet flowers; this was called Lee's Variegated, and was very scarce. It was, I think, raised by Mr. Bailey, then gardener at Nuneham Park. Mr. Kinghorn selected this Lee's Variegated to supply pollen for a cross on the old *Compactum*, which was the seed parent, and in the first batch of seedlings from this cross he obtained the celebrated *Cerise Unique*, and the much more celebrated Flower of the Day, the most useful and most famous of all known variegated-leaved Zonals. Mr. Kinghorn to this day considers this was the greatest advance ever accomplished at one bound in work of this kind, and I thoroughly agree with him. The large seedling plant and two smaller plants of Flower of the Day were purchased by Messrs. Lee in August, 1849, and in August, 1850, they had a stock of 1500 plants of various sizes to offer for sale—a wonderful sight in those days, and one worth seeing even now.

It so happens that the last-named, most useful of all the silver-leaved varieties, conducts us direct to the fountain head of the whole race of the tricolors. In the year 1850 Mr. Kinghorn raised from Flower of the Day the beautiful variety known as *Attraction*, the leaf of which has a silvery margin and a dark zone, diffusing subdued rays of red and rich brown outwards upon the creamy band that girdles it. The *Attraction* was the first silver tricolor, and one of the parents of the first golden tricolor. Mr. Grieve, in his admirable *History of Variegated Pelargoniums*, tells that he fertilised a dark-zoned variety known as *Cottage Maid* with the pollen of *Attraction*. Amongst the seedlings occurred one that was the parent of the dark-zoned Emperor of the French, from which came the whole race of golden tricolors. From *Cottage Maid* and *Golden Chain* (the latter being the pollen parent) Mr. Grieve obtained *Golden Tom Thumb*, and from Emperor of the French and *Golden Tom Thumb* (the latter being the pollen parent) he obtained *Golden Pheasant*, the first true golden tricolor. This same Emperor of the French, grandson of *Attraction*, produced by the pollen of *Golden Pheasant* the two most famous of the tricolors, Mrs. Pollock and *Sunset*.

The double Pelargoniums have had a career of fifty years at least. A handsome double purple, named *Veitchianum*, not of the zonal section, but allied to *Barringtoni*, was raised by the late Mr. J. Veitch at Exeter about the year 1828, and its portrait appears in Sweet's supplementary volume (81), where nearly next door to it is another double named *Implicatum* (86), which is as like the double *cucullatum* Mr. Cannell has been growing of late as can be expected of things that are probably different.

But the proper history of the doubles begins with Wilmore's Surprise, a handsome semi-double variety, which was described and figured in the *Gardeners' Chronicle* of August 17th, 1850. This was found by Mrs. Wilmore, of Strawberry Vale, Edgbaston, growing in the midst of a plantation of Hollyhocks, and so unaccustomed were the eyes of the florists to such a thing that it was considered to be a true hybrid between a Pelargonium and a Hollyhock. A remarkable fact in the history of this variety is that simultaneously with the finding of it in the garden at Edgbaston it was obtained by the late Mr. Beaton as a sport from *Diadematum rubescens*, and was by him named *Monstrosum*. The Edgbaston plant was shown by Messrs. Lee, of Hammersmith, at Regent's Park on the 30th of June, 1852, and Mr. Beaton suppressed his *monstrosum* in favour of it.

The double Zonals are of later date, one of the earliest being the crimson-scarlet *Gloire de Nancy*, which was first shown in this country in the year 1866. In the year 1869 there were seventeen double Zonals brought into public notice, and of other sections in that year the collective name was *Legion*. At this point of the story the subject becomes too large to be handled on the present occasion. It is quite certain that during the few years when Geraniums were everything and all other vegetables nothing in human estimation the heads of gardeners were so crammed with zones and margins, and trusses and pips and beds, that there was no room for anything else, and the phenomena of the tulipomania were reproduced in a newer fashion, and no one was fully aware of the fact that the world had gone mad on the subject of Pelargoniums.

Now that we can again survey the subject calmly it will be observed that two classes of Pelargoniums remain in full favour with the public. The large-flowered show varieties and the large-flowered single Zonals take the lead, and they are pleasantly followed by a crowd of Ivy-leaved, double-flowered, and variegated sorts that are useful and beautiful, but no longer oppress us by their multitude and similarity. The Pelargonium Society has set up a severe standard of judging, and a variety must be distinct and good to pass through the

sieve. Moreover, the raising of varieties has been to a great extent reduced to scientific principles, and we obtain as a result new characters suggestive of the great extent of the field that still lies open to the adventurous spirit in cross-breeding. No one in recent years has contributed more directly towards the scientific treatment of the subject than our painstaking Treasurer Dr. Denny, of whose labours I propose to present a hasty sketch.

Dr. Denny commenced the raising of Pelargoniums in the year 1866, having in view to ascertain the influence of parentage, and thus to establish a rule for the selection of varieties for seed-bearing purposes. In raising varieties with variegated leaves, as also with distinct and handsome flowers, he found the pollen parent exercised the greatest influence on the offspring. The foundation of his strain of circular-flowered Zonals was obtained by fertilising the large starry flowers of *Leonidas* with pollen taken from the finely-formed flowers of *Lord Derby*. From 1871 to the present time Dr. Denny has sent out sixty varieties, and he has in the same period raised and flowered and destroyed about thirty thousand. These figures show that when the selection is severe, and nothing is allowed to pass that is not of the highest quality, there must be five hundred seedlings grown for the chance of obtaining one worth naming. The late Mr. John Salter used to say that it was needful to flower two thousand seedling *Chrysanthemums* for the chance of one worth naming. Therefore, if the comparison is of any value, it shows that raising Zonals is a very profitable business, the chances of success being four times greater than with *Chrysanthemums*. But Dr. Denny obtains more good things than he sends out, for he makes every year a selection of plants for seeding, and these amount to about 3 per cent. of the total number. It will be seen, therefore, that for every one sent out under name there are about fifteen equally good or nearly so, but for some reason or other they are not parted with, but are reserved to supply seed or pollen, and are then destroyed to make room for a new selection.

Amongst many interesting results of our friend's observations is one that strikingly confirms a suspicion that accompanies a study of Sweet's portraits—it is that some varieties assume the character and bearing of species, and by self-fertilisation reproduce themselves with peculiar exactitude. No one can doubt that many of the so-called species of plants, whether of Pelargoniums at the Cape or of Willows in England, are as truly hybrids as any that are raised in gardens. And this brings us to the question, What is a species? and the question suggests that if in treating this great subject I scarcely knew where to begin, I certainly know where to leave off. I confess I do not know what is a species—and so, thanking you for your kind attention, I now return to the golden silence.

LUCKNOW HOUSE, ADDISCOMBE.

THE above address will be by no means unfamiliar to members of the National Rose Association and other scientific societies. After acting as Judge in several classes at Croydon, and having the satisfaction of awarding a first prize to a very meritorious twenty-four of the invaluable Hon. Treasurer possessed by the National Rose Society, we adjourned to Lucknow House, where, after the rites of much hospitality had been duly observed, I obtained at last my much-wished-for introduction to see Mr. Mawley's wonderful garden with its three hundred Rose trees.

People talk of it being impossible to cut a good twelve on any given show day without possessing six or seven hundred Rose trees, and how very many now get into their thousands? yet here is a garden that had three hundred last year, and now has barely 380 plants, the flowers from which won more first prizes last year than I can well enumerate. To give one instance: while its master was starring it with some of them at Manchester, the spare blooms left behind went to a neighbouring local show, and with ease won a first prize for twenty-four, defeating, I think, five of the trade besides other amateurs.

Here, then, was the garden which I, with my eight hundred Rose trees, last year met at the National and was defeated, and again at the Alexandra with the same result. Why, the whole house and garden does not cover the space of half an acre, yet it has a south wall border of all the best Teas, enjoying the rudest health, which anyone might be proud of. At right angles to this is a double row of robust H.P.'s—really robust is too feeble an adjective. The finest plants of all (a rapidly increasing plan) were all budded where they grow and never moved, the seedling Briar being the stock most favoured. Besides the richest viands and waterings weekly, twice a week the earth is turned over between the plants, thus carrying out Mr. George Paul's invariable exhortation, "Keep the hoe going," to something more than a pitch of perfection.

Tearing myself away from the Roses, I had just time for the glance round the scientific instruments for which Lucknow House is famous in a very wide scientific circle. And here I am distinctly out of my depth. There were two rain gauges, one of them only consulted once a month, which was of itself perplexing. Then a thermometer which went down a wooden well and came

up again, and showed the earth temperature at the daily depth of a foot. Then there was a stand of thermometers, the explanation of which would be bewildering could I hope to reproduce it. Then an instrument was shown me for weighing the rain, as if they had not had enough of it in the gauges! Last year must have given some employment. Then an anemometer—in fact two; then an instrument for registering the hours of sunshine, which pleased me most of all through its brilliant simplicity. Visiting it on the roof of the house was really an almost perilous process. I had observed with some dismay that the temperature on the grass was 70°. However, I had to follow “my guide, philosopher, and friend” up through a trap door into a little chamber under the slates, which he pleasingly suggested to me to touch. On emerging, all but failing, I gasped out an entreaty that he would test the temperature here. Of course a huge thermometer was immediately produced, and he calmly remarked that it was slightly over 100°. The Black Hole of Calcutta must have been cool by comparison. However, I was repaid by the heliograph, a large round glass globe, which acts as a burning glass on a long strip of blue card, placed daily beneath it, and graduated into hours division, which are traversed by a line of scoring whenever there is sunshine. I should have mentioned before that the interesting inmates of the garden wear tin helmets in wet weather, and the same with a white cap cover when afraid of the heat. That which I have attempted to describe is a marvellous instance of low high scientific faculties when directed to Rose-growing can make a great success out of very limited appliances—one more proof, if it were needed, that cleverness is only another word for a great faculty for painstaking. Like the first Cæsar—

“Nil actum reputans dum quid superabat agendum.”

“Counting nothing as done while anything yet remained over to be done.”

—A. C.

A WEEK OUT—KEW GARDENS.—No. 2.

CONTINUING my notes from page 44 I will first refer to the Orchids that were flowering in the national collection. These were *Vanda suavis*, *V. tricolor*, *Aërides affine*, *A. odoratum*, *Lælia purpurata*, *Epidendrum radiatum*, *E. expansum*, *Trochilus linearis*, grassy tufts; *Epidendrum virens*, singular green flowers; *E. variegatum*, green and black-barred flower; *E. ellipticum*, pink; *Cattleya Mossiæ*, *Cœlogyne ochracea*, white and yellow, very sweet; *Brassia verrucosa*, green and white, very fine; *B. maculata*, yellow-barred; *Thunia Marshalli*, white, handsome; *Lycaste Deppei*, greenish white, yellow-spotted; *Masdevallia Lindenii*, pink; *Mesospinidium roseum*, pale rose, beautiful; *Lycaste aromatica*, yellow, fragrant; the lovely *Utricularia montana*, an epiphytal Bladderwort, growing in baskets, flowers white, with bright yellow palate, very beautiful; *Odontoglossum pulchellum*, white, purple-spotted; *Oncidium macranthum*, immense spikes of large flowers, deep yellow, lip blotched with purplish crimson, very showy; *O. sphacelatum*, *O. leucochilum*, and *Maxillaria tenuifolia*. Of *Cypripediums*, *C. barbatum*, *C. Parishii*, and *C. longifolium*. In the *Sarracenia* house were *Drosera binata*, very pretty; *Sarracenia hybrida*, and the beautiful *S. Moorei* in good form.

Conspicuous at the entrance to the succulent house was the beautiful twining plant *Bomarea Carderi*, bearing pendulous terminal cymes of bell-shaped flowers of a pale rose or pink colour, the ends of the segments spotted with purplish brown; a very handsome greenhouse climber. In addition to a lot of grand *Agaves*, &c., were the lovely *Asparagus consanguineus*, with foliage finer than any Fern, a splendid plant for decorative purposes and sprays for cutting—finer even than *A. plumosus*; *Jatropha podagrica* with its gouty stem and fine orange scarlet umbel-like heads of flowers; and the old but very useful *Euphorbia splendens*. In fine contrast were *E. lactea* with huge stems and yellow flowers; *Opuntia monacantha* had grand deep yellow flowers, and *Sempervivum velutinum* had spreading bunches of yellow flowers.

Of Ferns I remarked in the tropical house *Gymnogramma trifoliata*, *Lygodium pinnatifidum*, *L. dichotomum*, and *Oleandra articulata* as fine pillar plants, the latter a creeping kind, and fine for overhanging rocks or baskets. In *Trichomanes* were *T. frondosum*, very fine; *T. alatum*; *T. trichodeum*, small, elegant, very beautiful; and the curious Liverwort-like *T. membranaceum*. *Hymenophyllums* were very fine, particularly *H. javanicum*, *H. hirsutum*, *H. ciliatum*, and *H. lineare*, *Trichomanes pyxidiferum* being very beautiful. These are grown under glasses.

PALM HOUSE.—*Higginsia Ghiesbreghtii* variegata was noticeable for its finely marbled distinct foliage and adaptability for decorative purposes. The Malay Apple (*Jambosa malaccensis*) with scarlet bottle-brush-like flowers produced freely from the old wood, and is only suitable for large houses from its tree growth. *Encephalartos longifolius* is a noble Cycad, very fine for conservatory,

also *Podocarpus cupressina* with Yew-like foliage. *Acalypha marginata* is one of the most distinct of this fine genus of decorative plants, and in a small state makes good table plants, having bronzy leaves margined bright rose. *Stigmaphyllon ciliatum*, a fine climber with yellow flowers; *Petræa volubilis*, twiner, with bluish purple flowers, very effective; and the singular *Vitis gongyloides* was noteworthy. *Crinum asiaticum* with white flowers and pink stamens was very effective and sweet-scented. *Æchmea glomerata* with lovely blue flowers, which in contrast with the scarlet bracts are very pleasing, and *Sterculia ornata* had effective marked ornamental foliage.

AQUATIC HOUSE.—Here were the pink Sacred Bean (*Nelumbium speciosum*) and the yellow species (*Nelumbium luteum*), and pink and white Water Lily (*Nymphaea versicolor*) the blue-flowered *Pontederia cærulea*, and yellow-flowered *Jussiaea natans*, and *Limncharis Plumieri*, *Thalia dealbata* relieving the flat water surface admirably. *Ceratopteris thalictroides* thriving admirably treated as a semi-aquatic. The railing around the tank had trained to it *Ipomæa* (*Batatas*) *paniculata*, bearing large pink *Convolvulus* flowers, a fine climber where there is plenty of room. *Russelia sarmentosa*, semi-scandent, a pillar plant, bearing scarlet flowers, finer even than *R. juncea*.

TEMPERATE HOUSE.—*Eutaxia myrtifolia* with its pretty orange Pea-shaped flowers was very beautiful, and the highly ornamental *E. longissima* of pendant habit and narrow striped leaves. *Kerria japonica* variegata forms a highly ornamental shrub, profusely flowered (yellow); *Hydrangea japonica rosea alba*, a very neat-growing free-flowering plant for pots; *Rhododendron Jenkinsii*, white waxy flowers, and very sweet; as was also *R. Maddeni*, white; *Rhodochiton volubile*, purple Bellflower, a neat pillar plant; *Swammerdamia glomerata*, with heads of white flowers, a pretty evergreen shrub about 3 feet high; *Bossia linophylla*, drooping habit, bearing bright yellow Pea-shaped flowers profusely, very fine, contrasting grandly with the bright red flowers of *Boronia clatior*; and the pretty *Bauera rubioides*, rosy purple; *Clianthus puniceus* was fine as a pillar plant, bearing its Pea-flowers abundantly; *Ruscus androgynus* is the most graceful of all pillar plants for a lofty conservatory, its fine pendant foliage having a grand effect; *Coprosma lucida*, bright shining evergreen, loaded with yellow berries; *Malva capensis*, fine white cup-shaped flowers, very effective; *Fuchsia thymifolia*, very pretty habit and foliage, with beautiful crimson flowers; and the evergreen *Serissa foetida*, bearing profusely white semi-double flowers; the very fine *Viburnum plicatum*, with balls of white; and the *Funkia undulata* variegata, as fine for decoration as many plants more choice, rare, and expensive.—G. ABBEY.

YELLOW IN THE FLOWER GARDEN.

THOSE who write so strongly against bedding-out, or the scarlet-and-yellow style of summer flower garden decoration, never fail to point out the “vulgar” way in which Golden Feather, yellow *Calceolarias*, and other plants and flowers of this colour are employed; but I had no conception until a few days ago of the very little regard that is paid to the teaching of the “floral reformers.” Of all the colours used in the London parks and gardens none predominate so much as yellow. To such an extent is this colour employed, that in looking sideways at a series of carpet beds in Battersea Park scarcely anything but yellow can be seen, and to see a bed in any of the parks without yellow in it is quite the exception. At the Crystal Palace large circles of yellow *Calceolarias* take the eye from everything else; and altogether I should say country gardeners going to London for new ideas must return with the determination to employ yellow with more caution than ever. This colour in proper proportion may be adopted with the best results in many combinations, but, in my opinion it is one of the most dangerous colours to work with, and should never be employed to a very great extent. While on this subject I may say that some of the most pleasing beds of the season are those planted with a well-balanced mixture of white-leaved *Geraniums* and blue *Lobelia*.—J. MUIR, *Margam*.

THE CELERY FLY.

JUDGING from several inquiries on the subject that have reached us this week we fear that this insect is much too general. Last year many crops were ruined, and unless prompt measures are taken to examine the plants daily and remove the affected leaves or crush the maggots in them similar losses may occur this year. All our inquirers do not appear to know that the blisters on the leaves contain small green grubs, and that these grubs are the larva of the Celery Fly (*Tephritis onopordinis*). The grubs may be found in the leaves of the Celery in June, July, September,

October, and November; for there are two or more broods of them in the course of the year. The grubs, though less frequently, are found doing similar damage to the leaves of Parsnips. When full grown the grubs descend into the earth and remain in the chrysalis state until the spring following, when they give birth to the fly. This, the Celery Fly, may usually be found upon the leaves of the Laurel, hovering over flowers and resting upon palings in the sunshine, from the middle of May to the end of July. It is one of the most beautiful of the English two-winged flies. The general colour of the body, which is five-jointed, varies from rusty brown to shining black; head buff, with black hairs;

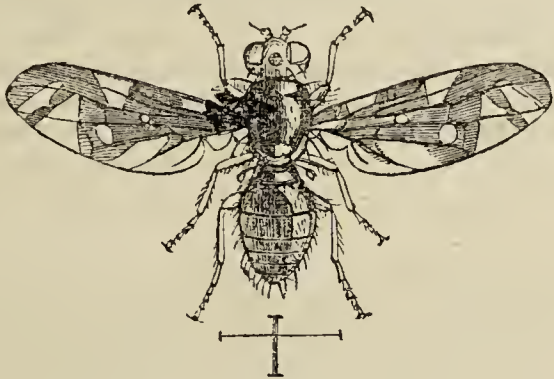


Fig. 18.

legs yellow; thorax (throat) sprinkled with long black hairs; wings black, with various pale spots; eyes green. The whole length of the insect is not more than one-sixth of an inch, and its wings when outspread barely half an inch across. The cross lines in our woodcut show these proportions as well as the insect magnified. The motions of this fly are very peculiar; seated upon a leaf in the sunshine, the wings are partially extended, yet partially elevated, and it has a sidling kind of motion.

We shall be very glad to hear from our practical correspondents the best modes of preventing the attacks of this destructive insect, while there is yet time to preserve the Celery crops from serious injury.



FRUIT HOUSES.

Pines.—The fruits of plants started early in the year will, as regards the early varieties, now be ripened off, and later varieties which were started at the same time will be sufficiently advanced to allow of the plants being removed to a vinery or other house with a somewhat dry atmosphere. This will afford additional space to the successional plants; and in preparing beds at this season judgment and experience are required, as too much heat at the roots of the plants is very injurious. Fermenting beds which were renewed by liberal additions of fresh material in spring will only require turning over to a depth of about 18 inches, whilst those not renewed at that time should have a foot of fresh tan incorporated with the old. Suckers from the plants alluded to above may be potted so soon as the house for receiving them is in readiness—viz., a close moist pit, having a fermenting bed with a temperature of 90°. The fibrous loam employed in potting should be rammed firmly in the pots and round the base of the suckers, watering once and plunge without delay, covering the soil in the pots with the plunging material so as to prevent it becoming very dry at the surface. With this precaution water will not be needed again until new roots are formed, but a light syringing occasionally will be beneficial. Effectual shading will be necessary when the sun is powerful, ventilating a little at 80° to 85°. The suckers started in June should be transferred to larger pots before the roots become very much matted together; 9 or 10 inches will suit Queens, and 11 inches others of stronger growth. Water the plants immediately after potting, and plunge them in a bed having a temperature of 90° to 95°. A batch of suckers should be reserved on the stools for starting at the beginning of September.

Cucumbers.—The rainy weather has not been favourable to Cucumbers, and the absence of sun has resulted in a plentiful crop of yellow

fruits and abundance of mildew in the foliage, with canker both at the collar and in the old growths, particularly where fire heat has been discontinued. In such weather gentle fire heat by night is advisable; dusting freely with flowers of sulphur for the mildew, whilst for canker the efficacy of quicklime has often been pointed out. After a period of dull weather Cucumber plants are liable to flag and have the leaves scorched, which should be prevented by judicious shading. Pot off the autumn fruiters, pinching out the growing point at the second rough leaf, completing the preparation of fermenting material and soil, removing the old plants preparatory to a fresh start; it being essential that the house be thoroughly cleaned. The only means of securing a free and fruitful growth is to pay close attention to ventilating, watering, shading, stopping, and well thinning out the growths periodically. In fine weather water copiously, and syringe freely between 3 and 4 P.M. If plants be now placed out in frames they will afford fruit in late summer and to a late period, due attention being given to line the beds when the weather is cold.

Melons.—Much that has been advised for Cucumbers applies to Melons. In wet sunless weather fire heat is necessary for plants setting as well as those ripening their fruits, as without dryness neither a good set nor a good flavour is to be had. The syringing should be discontinued for plants in any stage of growth in wet sunless weather, and more than ordinary vigilance should be exercised in looking for canker and cracked fruits. The last batch in pits and frames should be growing freely, one leader being trained to the back and the other to the front. The soil cannot be too firm to check the tendency to luxuriant growth, which in young plants at this season is very marked. The seeds for the last batch of plants should be sown without delay, which will afford fruits as late as they can be had of fair flavour. The plants for fruiting in October should be placed out without delay in a light house, and where plenty of heat can be afforded when necessary. Plants setting their fruits in pits or frames will require to have moisture sparingly applied, not, however, permitting flagging. In fine weather syringe freely, and afford a plentiful supply of water to plants with crops not actually in the setting or ripening stage, keeping the growths well thinned except when the fruits are setting, when the growths as the blossoms are impregnated should be stopped one joint beyond. Earth-up the roots of plants which have just set their fruits.

FLOWER GARDEN.

The weather has been such that plants delighting in moisture have had enough to carry them on for a long time, and where mulching has been practised little if any further watering will be necessary. Flowers, of course, in wet weather are few except Violas, which appear all the brighter, but Calceolaria flowers become filled with water and drop off. Examine the beds frequently, removing dead or decayed leaves and flowers; and to have Verbenas fine they should be frequently picked over, and kept well thinned by pinching back a portion of the shoots. Carpet-bedding plants should be regularly pinched and pegged twice a week, as such free-growing plants as *Mesembryanthemum cordifolium variegatum*, *Stellaria graminea aurea*, and others soon encroach on plants of less vigorous growth, and the effect depends in a great measure upon the lines forming the different designs being kept clear and distinct.

Continue sowing and pricking-out hardy perennials, such as Carnations, Picotees, Brompton Stocks, Wallflowers, &c., as soon as large enough to handle. Pansy seed should also be saved and sown, and cuttings inserted, also Violas for spring flowering. If the flowers of Marigolds and Asters are required extra fine the buds should be freely thinned, reserving the most promising only. Dahlias and Hollyhocks, and plants having a large leaf surface for the wind to act on, should be securely staked as they advance. Roses have had a hard time, and are now being attacked with mildew as they were in the spring with aphides. Syringe the bushes with a dilution of pentasulphide of calcium, employing a wineglassful to a gallon of water, or dust with flowers of sulphur. Continue budding, and insert cuttings under handlights in gentle heat. Tropæolums and Clematises should be trained. The latter are now in great beauty, but unfortunately are not so continuous-flowering as could be wished, and although fine for bedding they are not in at the right time or only flower for a

short time, and in late summer when most required they are over. The best places for them are archways, old stumps, and rockeries.

PLANT HOUSES.

Stove.—Climbers trained to the roof wires should be frequently examined, thinning and regulating the growths, or they will become so entangled as to render the work difficult, besides doing injury to growths it is desirable to retain. Some roof climbers are a harbour for insects, as they are not so forcibly syringed as to dislodge such pests as mealy bug and red spider. The roof climbers should of all others be kept free from insects by the prompt application of remedial measures. *Stephanotis*, *Ixoras*, *Dipladenias*, and similar plants done flowering should be similarly treated for mealy bug and scale, &c., as the *Gardenias*, giving a second or third dressing at intervals of a few days or before the young growths are started, though at the strength named it does not injure the young foliage. Young plants of the above named should be moved into larger pots if necessary, and growth encouraged as for *Gardenias*.

Eucharis amazonica.—Plants that flowered early and have made and completed a growth, should be rested, withholding water and keeping them rather cooler for about a month or six weeks, affording sufficient water to keep the leaves from injury, and after this, being returned to heat, they will quickly produce flowers. Plants that flowered but recently should have every encouragement to induce growth by the supply of plenty of moisture both at the roots and in the atmosphere.

Winter-flowering Plants.—*Aphelandra aurantiaca*, *A. Roezli*, *A. cristata*, and *A. nitens*, *Centropogon Lucyanus*, *Eranthemum pulchellum*, *Gesneras* of the *exoniensis* and *zebrina* type, *Thyrsacanthus rutilans*, *Scutellaria Mociniana*, and *S. pulchella*; *Sericographus Ghiesbreghtiana*, *Plumbago coccinea superba*, *Poinsettias* and *Begonias*, should be encouraged to make all the growth possible by keeping them near the glass in a growing temperature, and syringing them every evening. *Euphorbia jacquiniæflora* is of straggling growth, and may be improved by stopping the shoots, but it should not be done after the beginning of August.

Anthurium Schertzerianum.—Plants of this Aroid will now have passed their principal flowering; and although the plants that flowered early have a disposition to continue throwing flowers, the next month or six weeks is a good time to pot large plants. Employ fibrous peat in lumps as large as an egg, rejecting the small by sifting which should form half the compost, the other half being composed of equal parts sphagnum, charcoal, and potsherds broken moderately small, with a little sand. Good drainage is necessary, as when growing very plentiful supplies of water are required. *Achimenes* flowering in baskets will require liberal supplies of liquid manure to keep them in good condition. *Gloxinias* need similar attention.

NOTES ON VILLA AND SUBURBAN GARDENING.

FRUIT HOUSES.

Grapes.—The thinning of all late unforced *Grapes* must be completed before the berries become crowded. Fully two-thirds of the berries in most instances should be removed, especially if those retained are expected to keep well. Close-growing free-setting varieties especially require careful thinning. Syringing overhead is usually discontinued after the flowering time, but the walls and floors are frequently damped to insure a moist growing atmosphere, which also helps to ward off the attacks of red spider. This insect is very apt to appear after the syringing is discontinued, especially on heavily cropped Vines should the latter receive an insufficiency of moisture at the roots. The insects are very minute, but they are easily discovered by the yellow tinge which the foliage assumes on the under side. Where they are thus found active measures must at once be taken against them, or they will materially affect the finishing of the crop. Syringe the foliage forcibly early in the mornings, and again when the house is closed for the evening. Clear water, filtered if possible, must be employed, and the bloom on the berries will then be unaffected. Syringing must be discontinued when the berries are commencing colouring, at which time ventilation may be provided during the night. Water inside borders frequently; once a week is not too often, especially where the borders are limited. Vary the

waterings with either liquid manure or with some artificial manure. Employ the latter very carefully, as they are really injurious if used to excess.

Tomatoes.—Those being grown either in pots or boxes will now require abundance of water at the roots, as if allowed to become very dry the newly set fruit are liable to become misshapen, and it will also induce premature ripening in the case of larger fruit. Supply liquid manure frequently. When the first bunches of bloom are set give the plants a good top-dressing, consisting of equal parts of rough turfy loam and well-decomposed manure, into which they will readily emit fresh roots. See that the original soil is sufficiently moist previous to top-dressing, and afterwards examine it frequently. All side shoots should be removed, or they will rapidly smother the bloom. Take the tops off those plants of large-fruited varieties which have perfected three bunches of bloom, but the small-fruited varieties, such as *Vick's Criterion* and *Nesbit's Victoria*, may be allowed to grow on. Thin out the bunches if large fruit are in request.

Cucumbers.—Many are now growing these in their houses, and, as with the *Tomatoes* and *Grapes*, find them both ornamental and useful. Keep the roots active and near the surface by giving a top-dressing of turf and manure occasionally. Water frequently with farmyard liquid manure; failing this, sprinkle a little artificial manure over the surface of the bed and water it in. Thin out the growth if at all crowded, pinch back the young shoots to second joints, and avoid heavy cropping, red spider to be kept down by syringing overhead morning and evening and frequent damping of the floors and walls; and thrip—which also is very quick-spreading and injurious—is most effectively dislodged by an occasional fumigation with tobacco.

GREENHOUSES AND FRAMES.

Coleuses.—The small varieties are best grown rather flatly, but the larger-foliaged varieties make excellent pyramids. Give the former 5 or 6-inch pots, and the latter 8 or 9-inch pots, and water frequently with liquid manure when the plants are well established. Any soil may be used providing the pots are well drained. Keep the plants well pinched back till a good head is formed, taking up the central shoot in the case of pyramids, and for a time pinch back all the side shoots. Syringing overhead injures the colour of the foliage.

Gloxinias and Begonias.—Seedling plants in small pots should be shifted into 4-inch pots. Employ a compost consisting of equal parts loam and leaf soil with some sand for the *Begonias*, and two parts loam to one of leaf soil and sand for the *Gloxinias*. The latter should not be potted deeply, and though they like plenty of moisture in the atmosphere none should be placed on the foliage. Do not pinch back the Tuberous *Begonias*. Those *Begonias* intended for flowering during the winter should be pinched back to render them stocky, and gradually shifted on; such species as *B. nitida* and *B. fuchsoides* into 10-inch pots, and such as *B. Digswelliana* and *B. Saundersoniana* into 5 or 6-inch pots. Loam and peat, or loam, leaf soil, and sand, will suit them well. If *B. Weltoniensis* is wanted in flower in the autumn pinch back the plants and shift them on.

Chrysanthemums.—The tops of old plants strike readily in a little heat, and will, providing they are not pinched back, flower freely. Place about five cuttings of any one variety in 3-inch or 4-inch pots, and one in the centre. Keep the plants rather close and shade till rooted, when they should be gradually hardened, and eventually shifted into 6-inch pots and placed outside. Employ rich loamy soil, to which may well be added some crushed oyster shells and a sprinkling of soot, both for these and the older plants, which should now receive their final shift. Return these to an open sunny spot; water regularly. Place stakes to standards, and rub out all their side shoots.

Miscellaneous Plants.—Specimens of the large-flowering *Pelargoniums* that have bloomed should be placed in a sunny open spot and ripened off by gradually withholding water. Young flowerless growth struck at this time can easily be grown into specimens for next season. They will strike in light soil containing plenty of road grit on a greenhouse shelf. Sturdy cuttings of free-flowering *Zonal Pelargoniums* struck in the same way, and afterwards kept in 4-inch

pots in a sunny spot, topped once and not allowed to flower, will give a good supply of bloom in the early winter months. Place older plants also in a hot position, and pick out bloom buds as they appear. Keep young plants of *Browallia elata* closely pinched back, and shift into 5-inch pots. These also should be in an open position. They are useful winter-flowering plants. Strong clumps of *Spiræa japonica* should be divided, and either repotted or, better still, be planted out in moderately rich soil and lifted in the autumn as required. They are very suitable for the herbaceous border, as they are perfectly hardy, in the southern counties at all events. Plants treated as above have surpassed imported clumps either forced or otherwise. Bright sunny positions will be found injurious to *Cinerarias*. Keep them growing at the back of a north wall. Old plants of *Cyclamen persicum* did not succeed well where planted out during the last season, neither is it advisable to place them out this season. Shake them out and repot into pots varying in size according to the corms; a 6-inch pot is suitable for the largest. Employ soil consisting of two parts turfy loam and one of leaf soil and well-decomposed manure, with an addition of charcoal and sand. The pots should be well drained and the corms about half buried in the soil. They will do best in a cold frame, but will succeed in the open. Keep young plants growing freely, they will succeed in a half-spent hotbed. A cold frame is also suitable for Chinese *Primulas*, or they may be grown on a greenhouse shelf. Roses in pots ought to be out in an open spot, and should be kept supplied with water.

Camellias.—These also may now be repotted. Employ soil consisting of equal parts of coarsely broken turfy loam and peat, with some silver sand and charcoal, clean pots well drained, and pot rather firmly. Treat unhealthy plants in a manner similar to that advised for unhealthy *Azaleas*. Syringe them frequently, and do not remove them from the greenhouse before the buds are set. An occasional supply of liquid manure given to well-rooted plants not requiring to be repotted will materially assist them in the formation of fine bloom buds.

TRADE CATALOGUE RECEIVED.

Osborn & Sons, Fulham, London.—*General Catalogue of Plants.*



* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Botanical Work (*Flora*).—If you enclose a stamped directed envelope to Professor Oliver, The Royal Gardens, Kew, that gentleman will no doubt supply you with the information you require.

Decorative Pelargoniums (*J. W.*).—The flowers you send are decidedly handsome both in size and colour, but they appear somewhat rough and irregular in form, though that may be partly due to the packing. It would probably prove a useful variety for decorative purposes.

Peaches Decaying (*J. E., North Wales*).—The fruits have been punctured by an insect of some kind, which if you can find and forward to us we will endeavour to tell you its name, and furnish you with some information relative to its habits.

Rushes for Securing Rose Buds (*W. W.*).—The reference which you require will be found under the heading of "French Notes" on page 312 of vol. xxxvii. of this Journal, the issue of October 16th, 1879, where "D. Deat," has described the use of Rushes in the nursery of M. Margottin at Bourg-la-Reine.

Grapes Crushed (*P. J.*).—If you will send us herries packed in a small box, so that they arrive in the same condition in which they were sent, we will endeavour to answer your inquiries respecting them. Those sent loose in a linen bag came to our hands a flattened mass, and it is impossible for anyone to arrive at any conclusion as to their state when cut from the Vines.

Garden Expenses (*A Young Gardener*).—All proper expenses you incur, including the cost of stamps and paper employed in writing letters in the discharge of your duties, should be defrayed by your employer. In regard to the

other question you have no claim, and the "custom" you allude to is not by any means generally established.

Purchasing Plants (*J. P., Dublin*).—It is impossible for us to recommend nurserymen; it would be manifestly unfair for us to do so. By reading the reports of shows anyone may readily determine those growers who make a speciality of any particular class of plants; besides, such growers always advertise in our columns.

Heating with Pipes below the Boiler (*R. W.*).—You will find the communication to which you refer on page 98 of our last volume, the issue of February 5th of the present year. If you do not possess the number it can be had from the publisher in return for 3d. in postage stamps, and a request for No. 984 of the Journal. The plan of heating there described answers well when rightly carried out.

Fungus on Roses (*M. J. L.*).—The leaves are seriously affected with the black fungus. Syringe them with a solution of soft soap, 5 or 6 ozs. of soap being dissolved in a gallon of water; or nicotine soap, 4 ozs. to the gallon, and when wet dust the affected parts with sulphur. Another remedy is to sponge the leaves with 2 ozs. of blue vitriol (sulphate of copper) dissolved in hot water, and added to two or three gallons of cold water.

Cucumbers Not Setting (*Dan*).—Your frame is probably too moist and cold at night, and the growths, perhaps, too crowded. The fault is not in the soil. The weather of late has been very unfavourable for Cucumbers. Keep the growths thin and the surface of the bed drier, not watering through a rose to wet the flowers and fruit, which should rest on hits of slate or glass, not on the soil.

Paraffin versus Ants (*W. A. B.*).—We know that paraffin will drive away ants when poured on their nests, but it is dangerous applying it in an undiluted state to the soil in pots and close to the stems of plants. Your mode of saturating manure with the oil, and applying as a top-dressing, is safer than pouring it into the soil. We advise caution in the use of this powerful "insecticide," as we have seen both Vines and plants killed by employing it injudiciously.

Aniseed Tree (*Young Gardener*).—You are right, there is a shrub known by that name. Its botanical name is *Illicium anisatum*, the fruit having the flavour of anise, being used as a spice in Chinese cookery; there are other species, and the seed of *I. religiosum* is burnt as incense in Chinese temples. They are half-hardy evergreen shrubs, and are increased by cuttings of the young ripened shoots in sand under a glass in summer; by layers, from a stool in a cold pit, where they generally remain two years before being removed; sandy loam and peat. They require the protection of the cold pit or greenhouse in winter, though *I. floridanum* has stood out in many places with but a slight protection in severe weather. All the species we have named are natives of Japan.

Peaches "Woolly" (*P. T. B.*).—Dr. Hogg, though an excellent Peach of high colour when grown out of doors or on walls protected with glass, the trees not been forced, yet it is not always of superior quality when ripened with the aid of artificial heat. The other varieties you name, especially Royal George, are usually of excellent quality when slightly forced; but to have the fruit in the best condition the trees must be carefully and properly watered and ventilated, and they must not be overcropped. If you have carried out the instructions that have been frequently given in "Work for the Week" we think your trees have been too heavily cropped. A greater number of Nectarines would ripen well on a tree than would Peaches on a tree of the same size and vigour.

Grapes Dropping off (*A. J.*).—What you term cankering is certainly not the result of any pilfering to which the bunches may have been subjected, nor is it a case of shanking. So far as we can judge from the small bunch before us your Vines are in a very debilitated state. Either the roots have not access to the food they need or have not strength to appropriate it. What is the average circumference of the fruit-bearing laterals, and the diameter of the foliage? We suspect that like the bunch and berries they are small. Very possibly the Vines have received some check and injury by a low temperature and moist atmosphere, but we think the chief cause of the evil is a lack of the support that is requisite to the production of stout footstalks and large fruit.

Rose Leaves Blistered (*A Munster Subscriber*).—The foliage is deficient in texture, and cannot resist the effects of the sun. The blistering is the most marked on Roses growing in poor soil, and especially on plants that have long occupied the same positions, and consequently exhausted the soil. Blistering is also caused in some instances by small grubs eating the foliage. Give your Roses copious supplies of liquid manure, and mulch the surface with manure to retain the moisture in the soil; also examine the growth closely, removing any maggots that you can find. At the winter's pruning remove all the weak wood entirely, and shorten the young and strong shoots to induce more vigorous growth.

Packing Bulbs for New Zealand (*G. O. S.*).—The bulbs should be taken up when the foliage decays and dried of superfluous moisture, for if moist or even damp they would in all probability decay before reaching their destination. We know of no better material for packing them in than the husks or chaff of Buckwheat; failing this soft and perfectly dry Oat chaff would probably answer very well. A layer of the chaff should be placed at the bottom of a zinc-lined case, then a thin layer of bulbs, which should not quite touch each other, followed by a thicker layer of chaff, and so on until the case is quite filled, the whole being shaken and made firm as the work proceeds. If anyone who has had experience in packing bulbs for the Antipodes can state a better plan we will readily publish it.

Peach Trees Gummed (*C. S.*).—As only the trees in pots are unsatisfactory, those trained on the back wall being healthy, and as the former were placed in the open air after fruiting last year, we conclude that the growth was not matured owing to the singularly wet and dull weather to which they were subjected; and further, if the trees were left outdoors during the winter or until December, they were probably injured by the sudden and severe frosts that occurred in November. Keep the growths thin, removing any that are very luxuriant, and expose the trees to all the heat, light, and air possible to insure the maturation of the wood, and your trees will probably recover. Do not place the trees outside quite so soon, and house them a little earlier than usual, the time being determined by the weather.

Lettuces not Hearting (*J. M. C., Chester*).—Possibly your plants have received a check by transplanting during the dry weather that prevailed during April and May, or the soil may be light, thin, and poor. To prevent premature seeding no plan is equal to that of sowing the seed very thinly in drills where the plants are to remain until cut; but it is important that the soil be rich and deep, and that the plants be thinned very early, so that no crowding occurs when they are young. Many Lettuces are spoiled by the seed being sown too thickly, and the plants afterwards left too long in the seed bed before they are trans-

planted. If none of the circumstances suggested have promoted the premature "piping" of your Lettuces we attribute the cause to the seed not being of good quality. Last year was most unpropitious to the ripening of seed, and sound and well-matured seed is the first essential to satisfactory crops. If imperfect seed is the cause of your failure it does not necessarily follow that the seedsman is blameable, for we know that the chief nurserymen and seed firms made special efforts to obtain the best stocks that were procurable for supplying to their customers.

Insects on Vines (*J. S. S.*).—Without seeing the insects—and there are none on the leaves sent—it is impossible for us to tell you what they are. But whatever they are you appear to be able to destroy them, and you cannot do better than continue the treatment you have found effectual. Timely applications of quassia water might render the shoots and leaves distasteful to the insects and prevent their attacks, which is better than cure. We must inform you, however, that the numerous warts on the larger leaves are not caused by insects. Your vinery has been kept too close and moist at some time, and ventilation has been delayed too long in the morning. One leaf is certainly scorched, and the whole of them indicate that the ventilators have been closed when there was much moisture in the atmosphere when the sun has been shining on the house. Never close the house entirely, but leave the ventilators open an inch or two all night, increasing the ventilation very early in the morning in advance of the rising temperature, and do not syringe the Vines or damp the house late in the afternoon. Had you adopted this practice throughout the season your Vines would not be in the condition they are now; they will not, however, we think, be seriously injured if you keep them free from insects, admit more air, and employ less moisture. We do not think the man who supplied the Vines can be properly blamed for their present condition.

Melons Unhealthy (*Idem*).—The leaves sent are much infested with the red spider. If the plants are trained on a trellis syringe them forcibly; if in a frame sponge the leaves, especially the under surfaces, with a strong solution of soft soap. The red spider, not the fungus, is the cause of their present very unsatisfactory state.

Cucumbers Unhealthy (*J. S., Nottingham*).—The portion of roots you have enclosed enables us to say that they are affected with the "disease," all particulars of which you will find, with an illustration, on page 74 of No. 852 of the Journal, which can be had from the publisher in return for 3½d. in postage stamps. Mr. W. G. Smith there states a remedy, "salus," and he is supported by Mr. D. T. Fish, but other cultivators consider that to attempt applying a remedy to Cucumber roots badly affected with excrescences is to waste time needlessly. One who has had great experience gives the following advice in cases similar to yours:—"Raise fresh plants from seed, not from cuttings of the affected plants, which destroy. Remove the whole of the soil, give every part of the interior walls a thorough dressing with hot limewash, scour the whole of the woodwork, close the house, and fill it with fumes of sulphur; then put in some fresh sweet soil, and fresh plants will probably prove quite healthy." We should be glad if those who have Cucumbers thus affected would try carefully experiments with paraffin, as it is just possible that a strength might be found that would kill the vibrios, nematoid worms, without destroying the plants. It must be understood, however, that those trying such an experiment must be prepared to sacrifice some of the plants, but this would only be killing them a few weeks before they succumbed to the disease. We should commence with applying the paraffin at a strength of a fluid ounce to a gallon of water, increasing the strength in different portions of the bed. The result of such an experiment carefully conducted would be interesting and might be useful.

Melons not Setting (*F. J.*).—Plants growing in frames placed on manure are not unfrequently very exuberant from the roots of the Melons passing through the soil into the rich compost below, and over-luxuriance is not favourable to the setting of the fruit. The only course we can recommend you to pursue is to remove some of the exuberant growths, so that those remaining are so thinly disposed that the sun can shine on every leaf. Tread the soil very firmly, being very careful not to injure the foliage, and do not give any water for some days, or only just sufficient to prevent the foliage flagging. If the ends of the main shoots are cut off when they reach nearly to the sides of the frame, the axillary growths following will produce pistillate flowers, to which pollen should be applied from the staminate an hour after the frame has been opened in the morning. The fruit-bearing laterals should be pinched at one leaf beyond the flower immediately the latter is seen and before it expands. By carrying out this advice we think you will yet obtain some Melons. No growth should be permitted except that for fruit-bearing, and all laterals should be removed except those on which the fruit sets. We doubt if you will be able to ripen a second crop from the plant now swelling its fruit, but you may do so if the autumn proves warm and bright. After cutting the fruit carry out the advice as to pruning and stopping above recommended, and encourage fresh growth by keeping the frame close and moist until flowers appear on the plants, then maintain a drier atmosphere until the fruit has set, afterwards keeping the frame as warm as possible consistent with efficient ventilation. We thank you for your remarks of approval.

Lapageria rosea Culture (*A. B. S.*).—This plant is not difficult to cultivate either in a pot or border. Good plants can be grown in 11-inch or 13-inch pots, the shoots being trained to a trellis, a flat one being most suitable. Whether grown in a border or pot, good drainage should be secured. A border 4 feet long, 2 feet wide, and 2 feet deep, clear of the drainage, will support a large plant. The drainage should be, as already stated, very good, for, during the season of growth, the watering must be plentiful, and at no time must the soil be allowed to become dry. During the growing season a plant in a large pot will require a gallon of water daily, and one in a border thrice the quantity.

Names of Plants (*J. Mark*).—The two large leaves appear to be those of *Malva moschata*. The fragment of a fleshy leaf resembles an *Echeveria*, but such diminutive scraps are quite insufficient for identification. (*G. O. S.*).—The plant is *Veratrum nigrum*, commonly known as the Black Hellebore, though it is by no means related to the true Hellebores, being allied to the Lilies. It is a native of Central and South Europe. (*E.*).—We only undertake to name species, not varieties, of plants, which are too numerous and similar, and can only be determined by comparing them with others in a large collection. The *Colusces* you have sent are not species but varieties, yet as we recognise 2 as *Ajax*; 3, *Beauty of Fife*; 4, *Murrayi*; and 5, *Beauty of Widmore*, we name them for you. Send leaves of the others to the nurseryman from whom you purchased the plants. (*C. S., Forfarshire*).—1, *Knaulia arvensis*; 2, *Scorzonera hispanica*; 3, Probably a species of *Geranium*, but the specimen was too much withered for identification; 4, It is a *Centaurea*; 5, *Cherophyllum sylvestre*; 6, *Stachys palustris*. (*R. H. C.*).—*Streptocarpus Rexii*. (*Mrs. Davies*).—The fleshy plant is *Sedum azoideum variegatum*, the other is *Campanula fragilis*. Stop the shoots of *Rivina humilis* if you wish to obtain bushy specimens.



POULTRY, PIGEON, AND BEE CHRONICLE.

THE ROYAL COUNTIES (HANTS AND BERKS) AGRICULTURAL SHOW.

(Continued from page 59.)

OUR last week's report concluded with remarks upon the Jersey or Alderney classes; but the Guernsey, being also a Channel Island breed, we must consider the merits of these and two other breeds which were exhibited on the occasion. For the best Guernsey bull of any age, and under two years old, with two entries and one entry respectively, first prize for bull of any age was awarded to Major A. C. Macleay of Lyndhurst, Hants; the second to Mr. J. Carter, Privett Lodge, Gosport. They were both very good animals of the breed, but they do not gain public estimation, the chief difference between them and the Jersey breed being that the former give richer milk, but less of it; in fact, their milk is commonly employed in some dairies for the purpose of colouring the butter. The bull under two years of age which received the award belonged to the Rev. J. G. Nichol of Micheldever, Hants, and we thought it a useful animal, and rather superior to the older animals in the former class, showing as he did all the qualities of the breed, with a good outline and correct form. For the best Guernsey cow, six entries, first prize given to the Messrs. Wooldridge of Woodcote, Chichester; the second prize was taken by the Rev. J. G. Nichol. Both the prize animals, as well as the reserve number in this class, were good specimens of the breed, and we think with some extra attention in the selection of this stock that they may be reared so as to lay on fat during the milking period, and by judicious feeding may afterwards be turned to advantage by sale as fat animals. For Guernsey heifers under three years old, two entries, both prizes were taken by the Messrs. Wooldridge with very promising animals, and capable of producing stock of better outline and aptitude to fatten than we have yet seen of this breed if judiciously selected, with the object of obtaining extremely rich milk also.

Ayrshire Cattle.—For the best bull the first prize was given to Mr. G. Fermc of Streatham Hill, Surrey. This animal represents very fairly the breed, which is very hardy, and in various districts in Scotland they are able as dairy stock to bear the effect of the climate better than any of our English stock. For the best Ayrshire cow, eight entries; and for Ayrshire heifer, two entries.—In both these classes the exhibits were the best specimens of the breed we have seen, Mr. G. Fermc taking all the prizes with a class of stock which are great milkers, and will be more appreciated when they are better known, for in the various counties where the land is poor and the climate cold and stormy we generally find a crossbred or nondescript stock, which are anything but profitable as dairy cattle. But for the poorest and most exposed districts we can with confidence recommend the Ayrshire cows as the best and most profitable dairy cattle. **Brittany Cattle.**—There were classes for this breed, but they neither attracted much competition nor attention from the visitors to the Show-yard, for we find that the other milking breeds offer superior advantages.

Horses for Agricultural Purposes.—These usually form one of the most popular features of an agricultural exhibition. For the best cart stallion foaled before the year 1878 the first prize was taken by a splendid specimen well adapted for raising stock for farming purposes, being of good size, with clean legs, and very active. This animal was exhibited by Col. R. Loyd-Lindsay, V.C., M.P., Lockinge Park, Wantage, Berks. This horse also received the

champion prize as the best cart stallion in the Show-yard. The second prize was taken by Mr. J. S. Hodgson, Haslemere, Surrey. The third prize was awarded to Mr. E. A. Caldicutt, Court Farm, Reading, Berks, for a horse which we thought ought to have been placed second instead of third, for it was a magnificent animal, and stands as No. 276 in the "Pedigree Stud Book" of the English Cart-horse Society. Now, this stallion is of immense power, although not high enough for a London dray horse, yet he is over 16½ hands in height, and of substance in proportion. We heard it stated that he was placed third because he had large hocks. We view this matter as merely exhibiting joints of extra muscular power, for when the legs are flat with soft silky hair the large hocks do not indicate any constitutional tendency to grease or joint humours, so common to horses with big bony round legs, and padded with thick coarse hair. What we also admired in this animal was that, notwithstanding his great weight and power, he was as active as possible—certainly the most active of the farm horses shown, and this is the style and type of animal that we have always recommended to the notice of the home farmer, as being capable of drawing a plough in all summer work, or with two such to a double-furrowed plough. This we contend is the only true farm horse economy, for such an animal in ordinary draught or team is equal to pull 25 to 30 ewt. with ease. Her Majesty the Queen exhibited a well-bred Clydesdale stallion in this class, but it was not noticed by the Judges as commended or reserved number, although he was of full pedigree, and numbered in the "Stud Book" 1252. For the best cart stallion foaled in the year 1878 the first prize was awarded to Messrs. E. and A. Stanford of Ashurst Steyning, Sussex, for a remarkably promising Clydesdale stallion just under two years of age, which was much admired for its correct form and activity; in fact, just such an animal as many noblemen and gentlemen should possess and keep on the home farm for the use and benefit of the tenantry and farmers of the district, charging only a moderate price for service. The second prize was taken by a Suffolk stallion two years and two months old, belonging to Lord Northbrook of Stratton Park, Micheldever, Hants. This horse was very active but rather light, and wanting in substance for agricultural purposes. The third prize was given to a stallion of Clydesdale origin, bred and exhibited by Mr. William Drewitt of Bramley, Surrey. This was a very fine animal with plenty of substance, flat legs, and capital action, and we thought ought to have been placed second instead of third, because this breed and style of animal are of better constitution than the Suffolks generally, and will continue in farm work much longer. Her Majesty the Queen took the reserve number with a fine and well-bred Clydesdale stallion two years old, bred at the Shaw Farm, Windsor, and it was no discredit to be so placed in the company of such remarkable animals as formed this class. Class 18, for the best gelding or filly foaled in the year 1878, eight entries. First prize given to Messrs. E. & A. Stanford, who also held the reserved number and a high commendation, thus showing that their style and type of horses were held in high estimation by the Judges. Mr. J. S. Hodgson took second prize with a well-bred animal. Her Majesty the Queen exhibited two animals in this class, one of which was commended, and justly so, for both were Clydesdale fillies of great excellence. Class 19, for the best entire cart colt foaled in 1879, four entries, Messrs. Stanford again took the first prize and the reserved number in this interesting and promising show of youngsters, Mr. Wm. Drewitt taking the second prize. Class 20, for the best filly foaled in 1879, four entries. Again Messrs. Stanford took first prize and reserved number, the second prize being awarded to Mr. W. B. Stubbs of Alresford, Hants. Class 21, best mare and foal, and Class 22, best mare for breeding purposes. In both these classes, although the entries were four and five respectively, Messrs. Stanford took the first and third prizes in the former class, and first prize and reserved number in the latter. This must indeed be considered a great achievement at an exhibition wherein we do not hesitate to say that all the best animals known of the different ages to be found in the southern counties were entered, and it establishes beyond doubt that Messrs. Stanford's stud of Clydesdale stock is not only worthy of the attention of all breeders of farm horses, but that they exhibit a uniform type and style worthy of imitation throughout the kingdom, for this stock is of long standing reputation as well as of great present success in the show yard. We will pass over the hunters exhibited by thirteen competitors in Class 23, because the remarks which we propose to make in Class 24, referring to hacks, will for the most part apply with equal propriety in both classes. In the class for hacks or horses fitted for general purposes there were twelve entries. First prize awarded to Mrs. G. Prior, Horndean, Hants; second prize to Mr. H. A. Martin, Cosham, Hants. Both these horses were well-finished animals as regards outline and shape, and well worthy of the

prizes they obtained. We wish, however, to say that all the animals taking prizes in the hunter and hack classes were exceptionally good in themselves, but in the classes to which they belong—taking the breeding of these animals as compared with the hunter and hack horses of forty or fifty years ago—they are altogether different animals in shape, power, and endurance compared with the horses of that period. The old style and formation of both hunters and hacks has been crossed out by the racing or pure "blood" stock, and instead of the strong, short-backed, weight-carrying animals we have now and then a good animal, but generally a generation of nondescript animals with inferior legs and weak constitutions. They may, however, in all their variations answer the purpose of the breeders to some extent, for the demand for them is now divided between the hunting and harness horses and that which draws the tradesman's advertising van, so that really there is little inducement to attempt to re-establish the old style and type once so much valued in this country by both breeder and user.

Pigs.—For the best Berkshire boars and sows of different ages the competition was good, and the prizes were taken by Mr. E. Tombs, Bampton, Oxon; Mr. C. E. Duckering, Kirton, Lindsey; Mr. H. Humphrey, Shrivenham; Mr. Russell, Swanwick College Farm, Cirencester; and the Messrs. Hewer of Sevenhampton, Wilts. Having given the names of the prizewinners it will enable parties to know of whom to obtain the best stock. This breed is well known to be adapted for the production of the best bacon, as they afford a good proportion of fat and lean meat; they are also very prolific, and are usually good mothers. The large white breed were not represented on this occasion, which we regret, because we know they are so valuable for crossing with the Berkshire; in fact, we think this cross is more profitable than any pure breed, as they come earlier to maturity by making the best quarter pork at the earliest age. For the best pair of sows of a small white breed, only one entry by Her Majesty the Queen. These were, however, very choice animals, and bred at the Shaw Farm, Windsor. For Sussex pigs the prizewinners being Mr. J. Kent, Bognor, Sussex; Messrs. Stanford, Steyning; and Mr. Wheeler, Shepton-on-Stour. Each of these exhibitors entered some capital specimens of this breed, which are much approved in some southern districts. The show of pigs as a whole was adverse in one respect—that is, as breeding stock being too fat, and, in the helpless condition in which they were shown, were for the most part incapable of propagating their species.

WORK ON THE HOME FARM.

Horse Labour.—At intervals when the farm horses are not required in actual cultivation of the land, such as ploughing, harrowing, rolling, &c., chalk and lime may be carted to the farm, the former being placed near to where it will be required in dressing the land, the latter to be stored in a dry outbuilding ready for use during the autumn. After the field hay has been cleared it will be found in various instances, especially on the mixed soils in the enclosed districts, that there will be some couch grass in the Clover lea. Whenever this is found to be the case—and it is unfortunately but too common, in consequence of several difficult seasons when the land could not be effectively fallowed—the lea land should be rafter-ploughed and then scarified with Coleman's implement, not using the shares but the points only, in order that the land may be laid up rough, and in this way the white roots of the couch will be lifted out of the land to be dealt with and worked out by dragging, harrowing, rolling, &c., instead of being partially left in the land by the cutting action of the shares. After the land has been cleared of couch, which it may be by several scarifyings, the dung intended for the Wheat crop may then be laid out and spread, and about the last week in August or the first week in September the land may be ploughed and pressed, and thus remain to get mellow and stale, and only be worked down fine just before the act of drilling the seed for Wheat. Any light work, such as second or third scarifying, may be done with the strong iron-framed horse hoe, using the points or tines only, and drawn only by one horse, and in this way any remaining couch roots will be effectually removed at little cost, because the one horse will do 2½ acres per day, whereas Coleman's heavy implement would scarcely do 4 acres per day with three horses attached. It is, however, very important that the animals for single horse labour should be powerful, active, and in good condition; the strongest horse hoe should be obtained, so that it may be available not only for forcing root crops, but with appropriate shares, knives, and tines be capable of hoeing corn crops and doing scarifying work as well.

Hand Labour.—The hay in the backward districts and in the irrigated meadows everywhere will still be in the process of cutting, making, carting, stacking, &c. Great delay has taken place for some time past owing to showery weather, and considerable injury has been done to the hay crop. We therefore recommend in order to restore to some extent the lost condition and feeding value, the use and application at the time of stacking of certain spice or flavouring materials. The men will also be employed in tucking and trimming the hay stacks, and in drawing and piling straw for thatching, &c.

Turnip hoeing will be continued, and in some districts where labour is scarce we find that the Swedes, Turnips, &c., have made such rapid growth lately, and are so thick in the lines, that it will be difficult to complete the hand-hoeing in a proper manner if the work is delayed. We therefore recommend wherever the plants are thick in the rows that, instead of dragging or harrowing the lines across, to work the horse hoe across the lines with three cutting shares—that is to say, by reversing the outer shares or knives. The plants will then be cut out into bunches at the required distance, or indeed any distance, by a correct adjustment of the shares. This plan has the advantage of moving the ground as well as setting out the plants in bunches at intervals, and maintains them in growing condition until they can be singled out in a regular manner by hand-hoeing. Sowing common Turnips will still be continued with the prospect of a useful crop. Planting or ploughing-in plants of the Thousand-headed Kale may be continued, or in fact various kinds of Cabbage or Broccoli may be planted during the month of July with a fair prospect of obtaining a useful crop, especially of the small Drumhead Savoy, for late spring use. At this time, too, may be sown the new variety of Early Horn Carrot seed as sold by the principal seedsmen; these roots will be ready for sale in bunches in the vegetable markets for consumption in the autumn and early winter months, and will pay well where the land is within reach of any large town. The early fairs for sheep are now taking place, particularly of the Hampshire or West Country Downs, and if the ewes are purchased now they will offer to the ram almost immediately on their arrival at their new home. They should receive a generous diet, and particularly cake or cracked Beans at the time they are feeding upon the Clover or Saintfoin leaves, with a fold of Rape at night time; we consider Rape as the best vegetable food to induce the ewes to offer early to the ram. As fast as the ewes have been served they may be drafted and kept until lambing time without cake or any food costing extra money. The dairy cows will now in some instances be on the wane as to the quantity of milk given unless food besides the pasture grass is supplemented, especially where the grassland is inferior in quality of herbage. Various kinds of green fodder will still be available for the purpose when its use has been anticipated, such as Clover, Lucerne, spring-sown Trifolium, late-sown summer Vetches with tall Rape, &c.

ROUP IN FOWLS.

ROUP is the most troublesome, offensive, and with the single exception of cholera, the most fatal disease that the poultry breeder has to fight against. It generally commences with hoarseness and sneezing, and while in this stage may be easily cured. In the second stage of the disease the eyes become swollen, and nose and eyes discharge a thin watery substance that thickens and becomes very offensive as the disease progresses; ulcers form in the mouth and throat and around the eyes, the head swells, one or both eyes are closed, the comb turns black, the fowl loses its appetite, wastes away and dies.

Roup never comes without a cause, and the cause may be found in damp, filthy, ill-ventilated houses, wet swampy yards, impure drinking water, food that is insufficient in quantity and quality, crowding too many fowls in one building without paying the slightest attention to the sanitary regulations necessary to keep them in good health.

Roup is contagious, and when it once gets started in a district the premises of the most careful poultry breeders are liable to be invaded; but if you permit none of the causes mentioned to exist around your own premises, and provide dry well ventilated houses, so arranged that the fowls will not be exposed to draughts, it will go a long way towards preventing this insidious disease from getting a hold among your fowls.

The fact that fowls sometimes get along amid the filthiest surroundings with no attacks from roup, shows that filth and this disease are not inseparably connected. Roup in poultry is like diphtheria in the human subject. It is a disease as different from all other diseases as Wheat is from Oats, and, like Wheat or other grain, must spring from seed. The filthiest drains, cess-pools, or streets near human habitations may not cause diphtheria. Before this disease appears in a locality the filthy districts and the clean ones are alike exempt, but after it appears the places having the worst surroundings offer it the most congenial home, and it is apt to come there soonest, stay longest, and show the most severity at such places. But the cleanest, neatest families are not entirely exempt from diphtheria either. Just so when roup is not epidemic, the fowls in the foulest poultry houses escape its ravages; but when it is prevalent in a country it thrives and shows the most malignant form in damp dirty fowl-quarters.

When the roup makes its appearance among fowls, separate the sick from the well fowls at once, and thoroughly cleanse and disinfect the house. Whitewash the inside of the house, clean and disinfect the feed boxes and drinking vessels, and afterwards fumigate the house with sulphur.

Give the well fowls a tablespoonful of castor oil apiece, and

fumigate them by throwing a handful of sulphur on a pan of live coals placed in the house after the fowls have gone to roost. Give sulphur, pulverised charcoal, and pepper in the food once a day until the disease disappears from your premises.

If the sick fowls have not advanced beyond the first stage of the disease give them a large dose of castor oil, fumigate thoroughly with sulphur, feed only cooked food seasoned, and in addition give three drops daily of a solution of carbolic acid and water—sixty drops of water to one drop of the acid forms a solution. In mild cases this course of treatment will cure in less than a week.

After the disease has progressed so far that the head and eyes have become swollen, the matter from the nostrils offensive, and the mouth filled with ulcers, kill the worst cases and bury them. Give the others the same treatment recommended for the mild cases, except that chlorate of potash may be given in the drinking water once a day, and pulverised chlorate of potash, or burnt alum applied twice a day to the ulcers in the mouth and throat. Do not return the fowls that have been cured to the general poultry house for at least a week after recovery.—(*Prairie Farmer*.)

TOY PIGEONS—THE NUN.

THERE are few prettier Toy Pigeons than the Nun. In the old Pigeon books it always had a prominent place, and is well described in the "Dovecote and Aviary," a charming book of the days of our childhood, but now rather behind the times, since Pigeon fancying has become quite a scientific pursuit. Nuns were formerly far more popular among fanciers than they are at present; this change is, we fear, due to dishonest practices which the mania for exhibitions has stimulated. The variety is one which it is not easy to breed to anything like perfection, but which unfortunately is easily "improved" by trimming. The result of this is that unscrupulous exhibitors have so often carried off prizes with trimmed birds that honest fanciers have become disgusted, and have either given up the breed or keep their birds at home, and committees of shows seldom give special classes for it. The Nun is not a bird of many points or those very difficult of description, but its markings require to be very precise, not only for correctness from a fancier's point of view, but even to satisfy an ordinary eye for beauty. It is a small Pigeon with small straight (*i.e.*, not "downfaced") beak, and has the feathers all round the back of the head turned upwards, so as to form a cup or shell extending almost from ear to ear. The general plumage of the bird is white with the exception of the tail, the flight feathers, and the head, which are of some one colour, hence doubtless its name, the coloured or black head giving the idea of a Nun's veil. The chief merit of a good specimen is the precision of the head and wing markings.

1, The head should all be coloured within the shell, while the curling feathers of the shell itself should be white; the coloured part should extend downwards from the extremities of the shell in a nice curve and form a well-rounded semicircle on the breast. The difficulty is of course to get these peculiar markings clear and defined; in the shell the coloured feathers are apt to extend backwards, and on the other hand white ones often appear on the cap of the head itself. It is not difficult to see that a little plucking of these, which it is almost impossible to discover, may make the greatest difference in the appearance of the bird. On the breast, again, the semicircle is often ill-defined or misshapen, and the same process will make it perfect, or as fanciers call it "clean cut."

2, As to the flights. The old books give the proper number of those that should be coloured as six; of late several more have found favour with judges. Our idea is that eight or nine give the bird the prettiest appearance, causing the white part of the wing to look nicely rounded off. If possible there should be the same number on both sides. A bird which has this perfection is very valuable.

The eye of the Nun should be "pearl"—*i.e.*, the iris of a very pale pink. The colour of the beak varies, Nuns with black markings having dark, those of all other colours pink beaks. The colours of the markings are black, red, yellow, and blue, and they are called black, red, yellow, and blue "headed," according to their colour. Blacks are by far the most numerous, and certainly the contrast between their general plumage and their markings is very pretty. Good reds and yellows are rarely seen; in English lofts blues are almost extinct. We have seen them, and much admired the softness of their appearance, especially when mixed with the other varieties. The German fanciers occasionally send over Nuns with markings reversed—*i.e.*, the body black or coloured, the head, flights, and tail white. Such are no novelty, for Temminck says (we quote the translation of the "Dovecote and Aviary,") "the most beautiful specimens are those which are

black, but have the quill feathers and the head white. They are called Nonnains-Maurins."

We have found Nuns extremely prolific and excellent nurses. They are active birds and attractive in flight, and to be thoroughly appreciated should have their liberty. We have noticed a peculiarity mentioned by the author of the "Dovecote and Aviary," that when newly hatched the young of the black-headed variety have feet and bills quite dark. From our observations on the difficulty of breeding very perfect specimens it may easily be conjectured that a genuinely nearly perfect Nun is a valuable bird, while from their great prolificacy faulty ones are almost valueless. A young fancier need hardly be warned that birds which at a show seem nearly faultless are not always in reality so, and that unless their exhibitor is well known should not hastily be purchased. We wish some enthusiastic amateurs would take up the breed and improve it in accuracy of markings, as it certainly might be improved by careful selection. The various peristerion societies, too, in some of which the members bind themselves to show only *bonâ fide* untrimmed birds, might well give more encouragement to it.—C.

VARIETIES.

MR. O. E. CRESSWELL requests us to inform the members of the Poultry Club that he has returned from Sicily to Morney Cross, near Hereford, and can again attend to the business of the Club.

— **POULTRY SHOWS.**—We receive almost daily schedules of more summer shows to be held shortly. The Neath Show of Flowers, Fruit, Dogs, Poultry, and Pigeons is fixed for August 5th. The Poultry and Pigeon classes of the Swansea Show to be held on August 25th and 26th are good. The proportions of the Show of the "Royal Manchester, Liverpool, and North Lancashire Agricultural Society," to be held at Crewe on September 2nd to 6th, are very large.

— **FOOD OF SWANS.**—"H. F." tells us their favourite food is the American Pondweed and insects. There is little doubt but that they eat the ova of fish, but they will not eat fish, excepting it might be as soon as the ova hatches, certainly not when larger.

— **BRITISH BEE-KEEPERS' ASSOCIATION.**—The following are the arrangements made for the South Kensington Show:—Tuesday, July 27th, four o'clock P.M., quarterly Committee Meeting, at which the representatives of affiliated associations are entitled to attend. Special subject for consideration—"Suggested rules and regulations for county associations affiliated with the central Society." Six o'clock P.M., *Conversazione*. Subject for discussion—"The relations of bees to flowering plants," to be introduced by Frank R. Cheshire, Esq., of Avenue House, Acton. Wednesday, July 28th—General Meeting of the members of the Association at 5.30 P.M.; chair to be taken by the President, the Baroness Burdett-Coutts. Thursday, July 29th—Distribution of prizes by the Lady Aberdare at 5.30 P.M. All the above meetings will take place in the large conservatory adjoining the Show. On Tuesday, July 27th, the Show will open at twelve o'clock noon; on other days at 10 A.M. The Show will remain open on Friday and Saturday, July 30th and 31st, and on Bank Holiday, Monday, August 2nd. Members attending the Show will be required to bring their tickets of membership, which have been forwarded to all those who have paid their subscriptions for the current year, otherwise they will have to pay for admission to the gardens.

— **FEEDING MILCH COWS.**—An American dairyman answers the question "How shall we get the most milk from a cow with the least expense?" by stating:—Give the cows good pasturage and plenty of good water, with food composed of two parts of shorts and one part of corn meal given morning and evening, two quarts each time. Treat the cows gently, and then if they do not give good supplies of milk reject them and get cows that will. Too many cows are kept by milk-producers that do not pay for keeping. Let such be turned off for beef, and fill their places with such as have good milk-producing qualities. Good cows and good feed, with care and kind treatment, will lead to the answer of the above question.

— **USES OF THE POTATO.**—In France the farina is largely used for culinary purposes. The famous gravies, sauces, and soups of France are largely indebted for their excellence to that source, and the bread and pastry equally so, while a deal of the so-called cognac

imported into England from France is distilled from the Potato. Throughout Germany the same uses are common. In Poland the manufacture of spirits from the Potato is a most extensive trade. "Stettin brandy," well known in commerce, is largely imported into England, and is sent from thence to many parts of our foreign possessions as the produce of the Grape, and is placed on many a table of England as the same; while the fair ladies of America perfume themselves with the spirit of Potato under the designation of eau de Cologne. But there are other uses which this esculent is turned to abroad. After extracting the farina, the pulp is manufactured into ornamental articles, such as picture frames, snuff boxes, and several descriptions of toys, and the water that runs from it in the process of manufacture is a most valuable scourer.

— **BEE-KEEPING IN PARIS.**—It is not generally known that among the industries of Paris the keeping of bees is one that is much practised, and frequent complaints have been made to the police about the nuisance this occasioned. One inhabitant alone in the 19th Arrondissement keeps from eight to nine hundred hives, and there are a great number to be found in the 18th Arrondissement, near the goods station at Ivry. Valuable as is the possession of bees to the owners, there is no question but that they do a great deal of damage in various directions. At the Say sugar refinery, for instance, it is calculated that the damage amounts to 25,000*f.* a year, for a whole jarful of syrup will be completely emptied in less than a couple of hours, and two or three bushels of bees are taken or destroyed within the day. The workmen, who are obliged to follow their occupation bare to the waist, suffer terribly from these little pests, and frequently get badly stung.—(*Leeds Mercury*.)

PREVENTING EXCESSIVE SWARMING.

SINCE I last wrote I am happy to say that my method of management so as to prevent excessive swarming, as described in the Journal of July 1st, has answered fully up to my hopes. In the particular case detailed at page 20 the "one swarm" mentioned, a natural one, swarmed again on the 29th of June. This was no second swarm, or "cast," in the ordinary course of things, because I had then destroyed all the royal brood. The bees had simply renewed their preparations for swarming by constructing a fresh number of royal cells which were tenanted in the usual way. I had no hive full of brood to give this swarm as before, because I wanted its brood box to help another stock (see below), so I hived them in a large box with glass windows, putting them in the old place, and setting over it the two supers in which they had been working up to the time the swarm issued. It was so huge a swarm that it filled all three boxes from top to bottom. Before returning the supers I extracted about 10 lbs. of beautiful honeycomb from the larger super and 4 lbs. from the smaller, so as to give them more room for work. The bees began at once to work in all three simultaneously, and honeycomb is now sealing fast. I may mention that the original stock out of which the same queen swarmed on the 15th June has not swarmed again as I half feared at the time. It is now quite full of sealed honeycomb, and the bees are working in a sectional super.

Only two other stocks have attempted to swarm in my apiary. One was a sixteen-bar framer, not however fully worked or filled with brood. The bees were found accidentally *en masse* on an espalier on the 26th of June. Not knowing at the time out of which hive they had issued, they were established separately and put in a large box hive in my bee house, otherwise I should have put them in place of the parent hive and so prevented it from further swarming. As it was, the swarm not being a very large one, I had to strengthen it by setting under it the "brood box" above mentioned, taken from the bees which swarmed on the 29th. In the interval the bees had constructed several combs, which they have largely extended since; in fact, as I write, owing to the rapid and continued increase in the population, the large box in which they were hived (now a huge super) is nearly full of comb, while breeding has never ceased for a day since the swarm was established. Weather permitting I hope to have a great harvest from this swarm, which indeed may virtually be considered a non-swarmed stock.

To return to the parent hive. As the bees attempted to swarm again on the 5th July I thought it prudent in view of my absence from home to divide its sixteen-bar frames, making two stocks of it. These are now doing well, one of them actually working in a super. The only other hive in my apiary from which up to the present time (July 15th) a swarm has come is an Abbott-Woodbury. It

issued first on the 25th of June, and was returned after excision of all royal cells. It swarmed again on the 5th of July, having taken only ten days to reconstruct royal cells and repopulate them. In the interval, however, the bees yielded me $11\frac{1}{2}$ lbs. of rich honey in a doubled Lee's Crystal Palace super. To effectually prevent any further attempt at swarming I set over them a full-sized Woodbury without the intervention of any top or adapting board. Into this Woodbury (super) I also put one of their own bar-frames full of brood. Here they are doing splendidly, having the full benefit of their enormous population as if they had never attempted to swarm. The bar-frames in this super have guide combs of artificial fabric, more or less worked upon during the temporary occupation of this Woodbury by an earlier swarm.

Anyone who has thought it worth while to follow with attention the foregoing somewhat complicated account of my various bee operations this summer will see that my object has been fairly well attained. Swarming has been effectually checked, and the consequent weakening of the various hives by over-division prevented. Under ordinary treatment I should probably have had by this time over twenty-eight separate colonies, with a comparatively small number of bees at liberty to gather honey; whereas including the artificial swarms which I described in a former Journal, the sum total is fourteen stocks with an overflowing population of honey-gatherers in most of them. I say nothing of the immense saving of labour and watching which has attended this treatment of my apiary. My bees, too, have been singularly quiet and peaceable.—B. & W.

ARTIFICIAL COMB FOUNDATION.

I AM sorry that my remarks on this subject have aggrieved Mr. Raitt. In writing I endeavour to avoid the use of names, personalities, or remarks likely to cause pain to others. If I fail in my endeavour I hurt myself most. The question of artificial comb foundations sagging when used is one of long standing and has been considered a great difficulty. Laudable efforts have been made to overcome it. Even Mr. Raitt acknowledges that he has "tried strengthening materials, and has embedded in the heart of sheets threads of silk and raffia, and strips of parchment and tinfoil, with satisfactory results." I obtained some for experiment in supering, and was told to use it in small pieces, otherwise I should fail. Though quite ignorant on the subject I fancied that if useful in small pieces it would be more useful if used in large pieces, and believed that bar-frames could be entirely and advantageously filled with the foundations before swarms were hived amongst them. My experiment was a simple one and honestly recorded. My super was wedge-shaped, all of wood except the top, which was glass. The foundation sheets were cut to fit the box, and put in resting on the sides and bottom. The bees very soon fastened them to the bottom and sides. The cells were elongated and securely fastened to the bottom and half filled with honey. A broad foundation was laid, and everything seemed promising. Sure enough I was in love with both the wedge-shaped box and foundations, and the bees seemed as proud of them as I was. Thousands came up to finish the work so well begun. Honey shined in the cells. Some combs at the outside of the box reached the glass lid and were fastened to it. In the middle of the box the combs began to bend like blades of corn and curve by their own weight; in fact they bent over against one another, and the bees cemented them. And here let me say I am, and have been all my life, naturally inquisitive—always tracing cause and effect, and wanting good reasons—easy work and short cuts. In the case in question I want to know what made the combs to bend at the top of the super in the middle of the box. I openly and frankly say that I am ignorant, and ask others to tell me. I have as yet had no answer to the question. Mr. Raitt's illustration about a rope does not come near the subject. The bending combs were strong and broad enough at the bottom and for 3 inches upwards, and stood erect; above, they bent over and hung down like a loose line between two clothes posts. This is the kind of sagging which has engaged the attention of Mr. Raitt and other clever bee-keepers for years. Natural combs built upwards or downwards do not sag, and hence the question, Why do artificial foundations sag? I shall be thankful if Mr. Raitt or any other writer will explain it.

The simple experiment that I made has fully convinced me that the wedge-shape super is the best for the use of artificial comb foundations. The foundations resting on the sides of the super are held in position till the bees fasten them better. If the pieces used had been large enough to reach the lids the bees, doubtless, would have fastened them to the lids, and thus the sagging would have been prevented. The sagging was not observed, or did not begin till the crowd of workers in the supers increased the heat con-

siderably. The sagging took place in the centre where heat was greatest; and though the idea of imperfect materials was suggested to my mind, I could not entertain the idea of my friend using imperfect or impure materials wittingly. I know Mr. Raitt to be a thoroughly honest man, but adulteration of almost all kinds of manufactured materials is so common and general, that I should not have thought less of Mr. Raitt or any other manufacturer if he had been misled in the purchase of wax not altogether genuine. I get 4d. per lb. more for my wax than the retail price of dealers whose wax looks quite as good and pure as mine. But now Mr. Raitt assures us his foundations are made of pure wax, and I believe him.

I believe that the foundations will be largely used in future, especially in the bar-frame school of apiarians, and that large pieces of the sheets will be successfully used without the supports so much sought after, and therefore I fancy that the question of the cause of sagging deserves more attention than the by-play of boys climbing up a rope. That the heat of the bees caused the combs in my ease to soften and bend at their tops I verily believe, but why the heat did so is a mystery to—A. PETTIGREW.

OUR LETTER BOX.

Dead Grubs in Hive (N. McA.).—The grubs arrived this time safe enough, but were all in so advanced a stage of corruption, minute flies actually issuing from them, that it was impossible to form any conclusion as to the cause of death. If you send some to Mr. Frank Cheshire, Acton, W., in a less decomposed state, he would probably tell you whether the disease which seems to have attacked your apiary is foul brood or not. It has never yet attacked our hives.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ}32'40''$ N.; Long. $0^{\circ}8'0''$ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1880.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
July.		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Sun. 11	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Mon. 12	30.094	61.4	58.5	N.W.	59.0	69.8	51.8	118.3	48.1	0.210
Tues. 13	30.163	62.6	56.6	W.S.W.	59.5	70.6	53.9	117.0	51.0	—
Wed. 14	30.144	61.5	56.6	S.S.E.	59.3	71.3	55.0	115.0	51.8	0.122
Thurs. 15	30.059	65.0	60.2	E.	60.0	73.0	55.2	119.7	51.6	0.343
Friday 16	29.914	63.9	62.3	N.E.	60.4	75.1	57.4	121.3	55.3	0.024
Satur. 17	30.074	63.9	62.0	E.N.E.	60.6	76.2	55.3	120.1	50.5	—
	30.038	64.7	59.2	E.N.E.	61.8	74.5	56.8	105.0	53.8	0.036
Means.	30.069	62.7	59.3		60.2	72.9	55.1	115.2	51.7	0.738

REMARKS.

11th.—Dull morning, heavy shower 10.30 A.M. and 1 P.M., fine rest of the day.
 12th.—Very bright morning, overcast afternoon, fine evening.
 13th.—Bright and fine before noon, afternoon overcast, fine evening.
 14th.—Dull hazy morn, violent thunderstorm 0.45 to 5.55 P.M., thunder very loud, fine afternoon and evening.
 15th.—Excessively damp hazy morn, rain between 9 and 10 A.M., heavy clouds all day, particularly between 7 and 8 P.M., sunshine for short time in afternoon; clear night.
 16th.—Damp sultry day but no rain, thunder 5.47 P.M. till 6.15 P.M.; fair evening.
 17th.—More or less cloud all day and very oppressive, rain at 10 P.M.
 Temperature rather above the average, but cloudy and no extreme heat, much thunder and occasional heavy showers.—G. J. SYMONS.

COVENT GARDEN MARKET.—JULY 21.

THE market continues well supplied with all classes of goods, prices generally being lower, the state of business remaining much the same as last week.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½ sieve	2	6	to 4 6	Nectarines.....	dozen	2	6	to 10 0
Apricots.....	box	1	0	2 6	Oranges.....	£ 100	4	0	12 0
Cherries.....	½ lb.	0	4	1 0	Peaches.....	dozen	3	0	10 0
Chestnuts.....	bushel	12	0	16 0	Pears, kitchen ..	dozen	0	0	0 0
Figs.....	dozen	2	0	4 0	dessert.....	dozen	0	0	0 0
Filberts.....	½ lb.	0	0	1 0	Pine Apples....	½ lb.	1	0	3 0
Cobs.....	½ lb.	0	0	1 0	Plums.....	½ sieve	0	0	0 0
Gooseberries....	½ sieve	2	6	4 0	Raspberries....	½ lb.	0	3	0 6
Grapes, hothouse	½ lb.	1	6	3 0	Strawberries....	½ lb.	0	6	1 0
Lemons.....	£ 100	6	0	10 0	Walnuts.....	bushel	0	0	0 0
Melons.....	each	2	0	4 0	ditto.....	£ 100	0	0	0 0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0	to 4 0	Mushrooms.....	dozen	1	0	to 1 6
Asparagus.....	bundle	0	0	0 0	Mustard & Cress ..	punn.	0	2	0 3
Beans, Kidney....	½ lb.	0	6	0 9	Onions.....	bushel	3	6	5 0
Beet, Red.....	dozen	1	0	2 0	pickling.....	quart	0	0	0 9
Broccoli.....	bundle	0	9	1 6	Parsley..... doz.	bunches	6	0	0 0
Brussels Sprouts..	½ sieve	0	0	0 0	Parsnips.....	dozen	1	0	2 0
Cabbage.....	dozen	0	6	1 0	Peas.....	quart	0	10	1 3
Carrots.....	bunch	0	4	0 6	Potatoes.....	bushel	3	9	4 0
Capstems.....	£ 100	1	6	2 0	Kidney.....	bushel	4	0	0 0
Cauliflowers.....	dozen	0	0	3 6	Radishes..... doz.	bunches	1	6	2 6
Celery.....	bundle	1	6	2 0	Rhubarb.....	bundle	0	4	0 0
Coleworts..... doz.	bunches	2	0	4 0	Salsify.....	bundle	1	0	0 0
Cucumbers.....	each	0	4	0 6	Scorzonera.....	bundle	1	6	0 0
Endive.....	dozen	1	0	2 0	Seakale.....	basket	0	0	0 0
Fennel.....	bunch	0	3	0 0	Shallots.....	½ lb.	0	3	0 0
Garlic.....	½ lb.	0	6	0 0	Spinach.....	bushel	3	0	0 0
Herbs.....	bunch	0	2	0 0	Turnips.....	bunch	0	4	0 0
Leeks.....	bunch	0	0	4 0	Vegetable Marrows	each	0	2	0 3



29th	TH	Lytham Horticultural Show.
30th	F	
31st	S	Southampton Horticultural Show. Liverpool Summer Show.
1st	SUN	10TH SUNDAY AFTER TRINITY.
2nd	M	Popular Show at South Kensington. Leeds Horticultural Show.
3rd	TU	Brenchley and Horsmonden Show.
4th	W	Clevedon Annual Show.

VEGETABLES FOR AUTUMN SOWING.

A FULL supply of vegetables as early in the season as possible is the object which all good cultivators seek to obtain, and I question if in the whole routine of gardening they can devote their attention to any object of more importance. Now that we cannot depend on having spring weather until the end of May, too much care cannot be bestowed on all crops which can be sown in the autumn to grow throughout the winter and give us the earliest produce attainable. First amongst these crops we will place

CABBAGE.

A good supply of fine Cabbages all the year round is what every gardener should provide. In summer, autumn, and winter they are in constant demand, but if there is one period of the season more than another when they are most valued it is in April and May. At that time the demand is not confined to large gardens or servants' halls, but every person who possesses a garden must have spring Cabbages, and the earlier and better they have them the more gratifying is the result. Could we depend on the winters and springs being all alike it might be told to a day when to sow Cabbage seed to have the produce ready for use at any given time. As it is, however, little can be said about this, as seed sown from the middle to the end of July might produce plants which under the influences of a mild winter would all produce flower stems in March or April, while under different weather the plants might produce fine heads in April or May. For these reasons the best way is to sow the seed at two or three different times. I prefer sowing three times; first about the 12th of July, second about the last of that month, and again about the end of the second week in August. This plan is worth adopting in all parts of the country. The seed may be sown in large or small quantities according to the demand. It may be sown broadcast, not too thickly or too deeply. The soil should be good but not too rich for the seed bed, moderate growth being more desirable than too many soft leaves, as the plants in this state receive a check in transplanting and do not endure severe weather well. When the soil is very dry at the time of sowing it should be thoroughly watered after the seed is sown, but avoid covering with a mat or anything of the kind, which only renders the young plants tender—a condition always to be avoided with autumn or winter Cabbages. Remove any weeds that spring up amongst the young plants, and if by any chance the seed has been sown too thickly remove the worst of the plants, and give those intended for the crop every chance of

becoming strong and healthy. These remarks should be borne in mind in dealing with seed sown at any time. As the young plants are coming forward a suitable quarter must be selected in which to finally plant them.

"Plant them after Onions" is the proverbial advice, but I fear that for the last season or two Onions in many cases have not been ripe and cleared off the ground sufficiently early to allow the Cabbages to follow them. When this occurs with us we plant them after midseason Potatoes, and find them succeed fairly well. When the ground is moderately rich no manure should be added, and the soil merely levelled down with the spade answers better than digging for these Cabbages. Poor soil must, however, be improved, and the material supplied should be either fresh cow or stable manure. The date on which to plant out must be determined by the size of the plants. When they are about 6 inches high and have from eight to ten good leaves they may be safely transferred to their permanent quarters. Only the largest and best plants should be taken at first; and if it is intended to devote only one plot of ground to Cabbages, plants from each sowing should be placed in it. This, as before indicated, will have the effect of securing good spring Cabbages under any circumstances. A distance of 18 inches each way is suitable for most varieties. Plants not required for planting should be left in the seed bed, or be lifted and dibbled into a bed about 3 inches apart, as these are very useful for planting-out in spring or filling-up any blanks which may occur in those planted in autumn. Supposing the planting-out to be any time during September they will have gained a fair size by the end of October, and it is best to draw a little soil to their stems then, as keeping them firm in their places during the winter is much better than allowing them to be blown about.

Respecting varieties there are many to choose from. Early York and Enfield Market were two standard varieties for sowing at the present time for many years, but these have now been greatly improved upon. The main object to aim at is to obtain very dwarf, compact-growing, free-hearting varieties, and all these qualities are largely possessed by Carters' Heartwell Early Marrow and Suttons' Imperial, which are both well-known thoroughly good varieties. During the spring of this year I received a little seed from Edinburgh of a new variety named "Redbraes," and this has proved so far most distinct and excellent. Its leaves are frilled round the margin, and it grows very compact. The heads are about 10 inches in diameter at the base, and taper off to a small point, the whole plant being about a foot in height. Large-heading sorts should not be grown, as they are neither profitable as a crop nor good in quality.

TURNIPS.

A good supply of these during the winter is always valued. To have good fresh roots from November onwards the seed should be sown during the first week in August. Chirk Castle is one of the best varieties to sow, as it stands the winter well. The golden varieties are also hardy, but their colour is seldom liked, and for this reason many cannot grow them. They do well on ground just cleared of Peas or Potatoes, but the soil should neither be very loose or very rich, or long small "bulbs" will be produced. Ground in which Turnips would become tough before they were half grown in the months of June, July, and August, will generally produce a satisfactory crop during October and November. Where the space is small the

rows may be placed 15 inches apart, but 18 inches or more is better. If the seed is good it cannot be sown too thinly, and the plants cannot be thinned-out too early, as short stems from the first is a sure foundation for good, healthy, well-shaped roots. Fly is not troublesome now, and at the first thinning the plants may be left 3 inches apart. In a week or two afterwards every other one may be taken out, and in the end they may be left about 12 inches asunder. This latter distance is not too much in shady or very rich ground. Like Cabbage the seed may be sown at two or three different times, from the first to the last of August.

SPINACH.

Of all winter vegetables this is one of the most useful. Where a variety of vegetables have to be supplied it is quite indispensable. There are only two varieties of Spinach really worth growing, the Round-seeded and the Prickly-seeded. The former is the best for summer use, and the latter should be sown for winter and spring use. The seed should be sown at intervals of fifteen or eighteen days during August and September. That sown in August will give a supply previous to the new year, and the later-sown will come in during spring. Moderately rich ground and an open dry position are advantages in the culture of Spinach. We generally sow it in rows 18 inches apart. When ground is scarce we have sown it between the rows of autumn-planted Cabbages. The seed should be sown very thinly, about $1\frac{1}{2}$ inch below the surface, and as soon as the plants begin to meet in the rows they must be thinned-out to 6 inches or more apart. In severe weather a little bracken or straw thrown over them will afford a useful protection.

ONIONS.

Those sown at the present time are mostly of the Roeca and Tripoli type. They are grown for two purposes—viz., drawing while young for salads, and growing on to a large size for spring use in the kitchen. When grown to be drawn in a small state it is not of much consequence when they are sown, but when they are intended to be grown to maturity more care must be taken with them. When sown too early, and if they become very large in autumn, they generally flower in spring without “bulbing.” As a rule we find them best when they are only about 2 or not more than 3 inches high in February. To have them like this then we sow the seed about the second week in September. In some districts it might be sown earlier, and in others a little later; but in this, as with all other precarious crops, it is best to sow two or three times. Autumn Onions should be sown on deeply-dug and well-manured soil in an open situation. Beds may be formed from 3 feet to 5 feet wide, or the seed may be sown in successional rows. From 10 to 15 inches should be the distance between the rows. If any worms or grubs are suspected to be in the soil a heavy sprinkling of soot or a light coating of salt should be dug-in with the manure, as it is very unsatisfactory to see Onions killed before they are half grown. The seed should be sown thinly, the young plants not being thinned until February or March, when those drawn out may be planted in another piece of ground to form a crop. When wanted as salad, however, some may be drawn during any part of the winter, leaving sufficient in the ground for a crop. The White Naples comes into use earlier in spring than the Roccas, but for size and keeping well the latter are preferred.

LETTUCES.

These when they can be kept fresh and healthy are much valued in winter, and to have them good at that time the seed should be sown early in August, as the plants must become large before the end of October, for they will grow little afterwards. The Black-seeded Bath Cos and All the Year Round Cabbage are two good varieties to sow now. We seldom sow the seed where the plants are to remain, but prefer raising the plants in small beds. The soil in which they are planted should be moderately rich, and the situation should be warm and sheltered. It is generally on south borders and near the bases of walls that we plant our Lettuces after this time. Nine inches apart each way is a good distance to have them. Should the weather be moist at the time of planting a sharp look-out must be kept for snails. Later batches of seed may be sown

at the end of August, and again about the middle of September. To supply young plants from the seed bed early in spring as a first crop “All the Year Round” is a fine variety.

ENDIVE.

This is treated in all respects like the Lettuce, but the last seed is sown not later than the beginning of August. The plants from this sowing give a supply of heads during December, January, and February; late plants intended to come in after that time only run to seed before they are large enough for use, and are therefore not worth growing. The French Moss Curled and Green Curled Winter are two old varieties not yet surpassed.

RADISH.

There are many good spring and summer Radishes, but the winter varieties may be confined to two—viz., Black Spanish and the China Rose, oval-shaped. During August and the early part of September two sowings may be made out of doors in a sunny sheltered position, but during the latter part of September the seed must be sown in frames if Radishes are wanted at Christmas and after that. In all cases the seed must be sown very thinly, as it is only by admitting plenty of light and air to the roots that they can be induced to swell. The soil should also be very firm and not very rich. In winter Radishes keep a long time fit for use after they are fully grown; they must, however, be allowed to remain in the ground, and be protected in very cold or wet weather.

CAULIFLOWER.

The cultivation of this need not be entered into at the present time, but it may be useful to remark that to have plants to stand the winter, and be ready to plant out the first opportunity in spring, the seed should be sown from the middle to the end of August. Early London and anybody's Extra Early may be usefully sown at the same time. The seed may be sown inside a frame on any south border, or in a small patch to be covered with a frame when severe weather comes. Thinly grown plants which have never been “coddled” in any way are those which turn out most satisfactory in spring.—J. MUIR.

COLEUSES.

VARIETIES of these plants have increased so rapidly of late, that persons desirous of growing a limited number must be considerably perplexed if they have no other alternative than nursery-men's catalogues to guide them in their choice. Captain Aubrey Patton, however, has come to the rescue by exhibiting the greatest number of varieties that has ever been placed before the public in one group, and has consequently afforded an excellent opportunity for making a selection of those sorts that appear to be the best worth cultivating. Out of 150 varieties arranged at South Kensington on the occasion of the evening fête on the 21st inst., nearly 130 were placed in commerce within the past two years, indeed many of them were new varieties of the present season. Some of the plants were therefore necessarily small, having been struck from very small cuttings in June, and none of them were propagated before May of the present year. A few of the larger plants were 3 feet high and the same in diameter, ranging downwards to a sixth of that size. Several of the forms are certainly not beautiful; they possess coarseness without colour. The leaves of others are so much cut, so deeply lobed, as to give the plants almost a ragged appearance, while some of the pale-foliaged varieties, almost albinos and destitute of chlorophyll, are evidently bad growers, and unless a Coleus grows freely it is scarcely worth cultivating. Those that are free in growth, distinct, and bright in colour, and there are many of them, are useful for the decoration of conservatories in summer and stoves in winter and early spring. They are most easily cultivated and seldom troubled with insects unless mealy bug prevails, and if this once affects them, which it is very liable to do, it is no easy task to eradicate it. The following are some of the most striking varieties which were included in the group in question.

Dark Varieties.—The finest of these is undoubtedly Allen Chandler, sent out by Messrs. Carter & Co. It is a stately plant; leaves 7 inches long without the footstalk, and 5 inches wide, of a thick velvety texture suffused with magenta crimson. Both under sunlight and gaslight it is very brilliant. It showed to great disadvantage when submitted to the Floral Committee in the dull Council-room on the 13th inst., otherwise it would probably have

had a first-class certificate; it is certain this honour has been awarded to varieties less distinct and attractive. Captain Patton esteems it the finest variety in his possession, and well grown it would make a handsome and imposing pyramid; for the bush form of culture it is not so well adapted. Royal Purple (Bull) is perhaps the darkest of all, and of good habit; will make either a fine pyramid or bush, and "tells well" amongst the lighter colours. George Simpson, a celebrated variety raised by Mr. King and distributed by Messrs. Veitch, is very rich, glowing and effective, with yellow teeth; one of the best. Flambeau is of the type of Allen Chandler, deep bronze green with crimson veins. Turban is also of much the same ground colour, but spotted as well as veined with magenta; distinct and fine. Chelsea Beauty is the finest of Mr. Bull's last batch. The colour is bright velvety crimson with pale crimson veins and very prominent pale yellow teeth; fine. Victory is good, as also is the better known Duchess of Teck. Amazement, though less highly coloured, is distinct, almost grotesque by its deeply cut leaves, the serratures exceeding an inch in depth. Sensation is an improvement on Kentish Fire, and Sunbeam is a bright and bold variety.

Painted Varieties.—These are effective, being generally free in growth, lively in appearance, and adapted to any form of training. Several rather closely resembled each other, but the following are dissimilar and noteworthy:—Gloire de Monceau, distinct; prevailing colour bright deep green with numerous red veins, and mottled all over with greenish yellow. Mons. F. Henricq, prevailing colour yellow, blotched with pale red, and deeply toothed; Keyser Wilhelm, very sportive, the colour varying almost from black to pale yellow, possibly not a robust grower. Miss Florence, much like Gloire de Monceau. M. Grakchef, peculiar rather than beautiful by its purple teeth. James Barnshaw is quite one of the finest, varied in colour, bright and free. Butterfly is also excellent; Earnest Benary is strong, massive, and telling, as also is M. H. Jamain; while Firefly is gay and cheerful, and will make a fine specimen. Placida, red, yellow, and green, is striking, as also are L. W. Baxendale, Brookwood, and Minnie Peed; and Distinction attracts notice by its greenish maroon leaves with purple veins and pink centre.

Yellow Varieties.—One of the finest of these is Canary Bird (Carter); it is very bright and of fine habit. MM. Vilmorin and M. E. Pynaert are also extremely effective as associated with the darker forms. Yellow Gem (Bull) must not be omitted from this section. It is highly distinct and dwarf, cream and pale green with a mottled edge much curled and crisped. M. Charles Avril is fine, very pale crimson and yellow.

Pale and Crisped Varieties.—These are mostly dwarf, and some of them are extremely attractive, while others do not appear to grow freely, those with much white in the foliage being prone to decay. Favourite (Bull) is perhaps the best of all, being free, curious, and bright; but about equally worth growing are Novelty, Lovely, Exquisite, Captivation, and Bijou; the colours cream, green, and pink being more or less represented in the foliage.

The above are selected as the most satisfactory varieties in the collection referred to, and well cultivated will not be likely to disappoint the admirers of this free-growing, gay, and extremely diverse genus of ornamental-foliaged plants. There may be others in commerce equally good that Captain Patton did not procure, but he endeavoured to obtain all the best, and spared neither pains nor expense in rendering his collection as complete as possible. It was a fine group and instructive, but would have been more so had the names of the raisers been included on the extremely neat and attractively written labels.—J.

SCOTCH CHAMPION POTATOES DISEASED.

I AM much obliged for your reply to my query about my Potatoes answered to "G. R. B." in the *Journal of Horticulture*, July 8th. The outbreak of the disease is most mysterious, and I am sorry to say is on the increase. Since I wrote to you the disease has spread among the Scotch Champions, and I fear none of them will escape. The Lapstone and Veitch's Ashleaf are also attacked, and a few Myatt's Prolific, but nothing to the extent of the Champions. Snowflake, and a new Potato named Monarch, and Early Vermont are quite healthy and in full flower. Until the last week the weather has been unusually dry. The rainfall for the year is as follows:—January, 0.46; February, 1.87; March, 1.84; April, 1.42; May, 2.03; June, 1.11; to 10th July, 1.04; total, 9.77 inches. Since 10th July there has been heavy rain. The height of this place is 484 feet above the sea, sandstone subsoil coming in places within 18 inches of the surface. The temperature has been lower than average all the spring, but there was an absence of severe frost, and none of the Potatoes were cut down on the hills, while my neighbours in the valley suffered

considerably. I have seen the person from whom I had the Scotch Champions. They came direct from East Lothian, a few miles from Dunbar, where the Potatoes were quite healthy last year. It is very mysterious.—GEO. R. BIGGE.

[This is indeed a mysterious case. The disease of the Scotch Champions, as sent to us, first appears on the lower portion of the stems close to the ground, and even beneath the surface. We have seen the murrain this year attacking the Magnum Bonum and Grampian in a precisely similar manner, which seems to indicate that the disease spores were in the sets, and that they germinate as soon as the conditions of moisture and temperature are suitable, and the fungus spreads upwards; frequently, or perhaps generally, the murrain attacks the tops and travels downwards. But the perplexing part of the question is that the seed Potatoes now diseased were the produce of crops believed to be perfectly free from the murrain last year. Of course the spores of the fungus may have been in the soil, but if so it is singular that it should have attacked these hitherto considered disease-proof varieties first. We extremely regret this occurrence, and can only advocate the removal and burning of the haulm of the late kinds as soon as it is attacked, and the taking-up of the early crops as soon as the tubers attain their full size. If any cultivators can make any more practical and useful suggestions we will readily publish them. We know of no application that will check the disease; even "salus" quite failed to do so when it was tried at Chiswick.—EDS.]

THE ROSE ELECTION.

It is time, perhaps, that the preliminary note of this year's Rose election should be struck. With the consent of the "ruling powers at No. 171," it will be a Rose election "limited." The term will not apply, however, to those who share in the election, but will be limited to Roses having a *Tea* flavour; in fact, unless good cause is shown to the contrary, it will be an election of Teas and Noisettes only. For two years I have been asked to undertake this.

As Teas are general favourites where they will grow, and seeing that vigour and ability to resist wintry blasts are very essential requisites to success, it does not seem to me advisable to make the election take an "exhibition" form, though doubtless many will frame their opinions by that test. I propose to divide it into twenty-four and thirty-six varieties, using all the replies in the twenty-four, and making a summary of the thirty-six varieties separately. It will be interesting to compare both tables, and seeing how far the smaller growers agree in their opinions with those who try every variety. The question, then, will be—

Name the best six Teas or Noisette Roses for general purposes, the second best six, the next best twelve.

Those who choose can add a third twelve, making thirty-six in all.

I shall be glad to have replies by the last day of August.—JOSEPH HINTON, *Warminster*.

EVENING FÊTE AT SOUTH KENSINGTON.

THE Royal Horticultural Society held its annual evening fête at South Kensington on Wednesday the 21st inst., and being favoured with fine weather after a few showers in the early part of the evening, it proved highly successful, and a very large and distinguished company assembled to enjoy the numerous attractions provided. The east and west quadrants were occupied by numerous collections of plants, which appeared to excellent advantage beneath the electric light. Of the plants thus contributed a large proportion were from the Society's garden at Chiswick, one group of Tuberous Begonias being particularly attractive. An extensive and imposing collection of plants were staged by Captain Patton in the east quadrant, comprising 150 varieties of Coleuses, some of them very handsome, arranged with Palms, Lilies, and miscellaneous fine-foliage plants. Another very attractive group was that from H. J. Atkinson, Esq., Gunnersbury House, Acton (gardener, Mr. Hudson), which contained some handsome specimen Ferns, Crotons, Palms, and other plants effectively arranged. Mrs. Hudson contributed an elegant and pleasing example of table decoration, which found many admirers. Nurserymen also exhibited well, one of the principal groups being that from Mr. B. S. Williams, Victoria Nurseries, Upper Holloway, which included a number of choice stove plants; Orchids, Palms, Nepenthes, Ferns, &c., being exceptionally well represented. The General Horticultural Company sent a large and beautiful group of Palms, Ferns, Gloxinias, and others, the central plant being a fine specimen of the beautifully variegated *Phyllanthus nivosus*. Messrs. Osborn & Son, Fulham, had a pleasing arrangement of fine-foliage plants; and Mr. Aldous, South Kensington, exhibited a graceful mode of decorating a fire grate and mantelshelf. Messrs. Dick Radclyffe & Co., High Holborn, contributed a charming arrangement for a grotto; and Mr. Cannell, Swanley, staged a large collection of trusses of Ver-

benas representing more than 150 varieties, very bright and rich in colour.

The grounds were illuminated with Messrs. Siemens' electric light, which proved on this occasion exceptionally brilliant and steady, and upwards of eight thousand coloured lamps, which were arranged spirally up the stems of trees, in festoons from tree to tree, among the branches, and around the fountains, considerable taste being displayed in the arrangement. Coloured fires were employed at intervals, but owing to the stillness of the air the smoke somewhat marred the effect. In the conservatory the Kensington Amateur Choral Society sang an admirable selection of part songs, and on the terrace the bands of the Royal Horse Guards and Life Guards contributed greatly to the pleasure of the visitors. Under the superintendence of the Secretary and members of the Council, Mr. Barron the Superintendent, and Mr. Dick the Assistant Secretary, carried out the arrangements with great efficiency; indeed in every respect this was probably the most successful meeting of the kind ever held by the Society.

GARDENIAS.

PLANTS that have flowered late should be pruned, but not too closely unless they are overgrown, when they may be cut well back, otherwise the mere removal of irregularities of growth is all that is required. The plants should be thoroughly cleaned from mealy bug and scale, as the growth being old will admit of an insecticide being applied at a greater strength than when the shoots are young and soft. A solution of nicotine soap, 6 ozs. to the gallon of water, will destroy both mealy bug and scale, either by dipping the plants or syringing them with the solution at a temperature of 100° to 120°. To be effectual, however, it must be thoroughly done, as partial cleansing only leaves stock to breed, and gives the impression that plants cannot be cleansed of mealy bug when once they are affected. The plants should be encouraged to make growth by plenty of heat and a moist atmosphere, and when fairly growing should be repotted, merely loosening the sides of the ball and removing any loose soil. Young stock that it is desired to advance quickly should be moved into larger pots, and encouraged at the warmest end of the stove by syringing every evening. *Gardenia florida intermedia* is by far the largest and freest-flowered of the family, and should be grown in quantity.—G. P.

WIRRAL ROSE SHOW.

WILL it not surprise the readers of the Journal to hear that the best Rose Show of the year has been that held by a young Society only two years old, and in a place concerning which the exclamation will be in nine cases out of ten—"Wirral! Wirral! Never heard of such a place!" Not so extensive as that at the Crystal Palace, but certainly as large as that of the National Rose Society at Manchester, and in the quality of the exhibits exceeding it. As the reporter for the Journal was taking notes I shall content myself with a few general observations.

Wirral is the name of the hundred in which Birkenhead is situated, and the Show was held in the archery ground in Birkenhead Park, and in a tent were staged some of the finest stands I have seen this year. When I say that Messrs. Cranston, Paul & Son, Davison, Prince, &c., exhibited amongst the growers for sale, and Messrs. Jowitt and Hawtrey amongst amateurs, it will be readily conceded that the materials for a fine exhibition were not wanting. But how, it will be asked, could such growers be induced to go to so new a Society and so far off? Simply this: Birkenhead possesses a considerable number of Rose-growers, who are also by no means timid men; and believing that what is to be done at all should be done well, they agreed that twenty of them should put down five guineas apiece as a guarantee fund, and, thus securing themselves against possible loss, should offer such prizes as would induce growers from a distance; and having, moreover, a Secretary whose energy belonged to no limited liability, but is untiring, they have attained the proud pre-eminence of holding the best Exhibition of the year, with the one exception of the National. There was but one element of disappointment—the weather, which has proved so treacherous this year and has so defied all forecasts; it was as bad as could be, and I fear the guarantors will have to suffer; but as one of them said, "We shall cheerfully pay up our five guineas and come up again." With such a spirit amongst them it needs no seer to predict a successful time for the Wirral Rose Society.

Although Mr. Cranston was, as he everywhere has been this year, *facile princeps*, yet I should be inclined to give the palm to the box of thirty-six exhibited by Mr. Jowitt, for this was as near perfection as possible. I question very much if he could have picked out such a thirty-six out of his stand of forty-eight with which he won the cup at the Crystal Palace. Some of the blooms, such as A. K. Williams, Beauty of Waltham, Marie Rady, and Charles Lefebvre, were inexpressibly grand. Your reporter will have noticed, I have no doubt, most of the fine blooms, but I cannot pass by the magnificent twelve Marie Radys of Mr. Cranston, or the very nearly equally grand twelve of Marie Baumann of Messrs. F. and A. Dickson & Sons, Chester. I have never seen such a stand of Marie Rady, and it nearly equalled

the splendid twelve Alfred Colomb of Mr. Jowitt shown at Manchester. Amongst local exhibitors Mr. T. B. Hall of Lant Grove, Rock Ferry, had by far the finest collection, winning the first prize for twenty-four blooms, and the National Rose Society's silver medal. I was not surprised at the excellence of the blooms when I saw the splendid growth of his plants. I must add personally it was a visit of great enjoyment. I went to Wirral as a stranger, but was received with the utmost cordiality and kindness, especially by the President, Mr. Hall, and that I look forward with much pleasure to a renewal of an acquaintance so happily begun.—D., Deal.

THIS, the second Show of the Wirral Rose Society, was held on the 24th inst. in Birkenhead Park. Last year the Society held their Exhibition at Bebington, and offered about £30 in prizes. This year they offered a schedule of fifteen classes and gave £105 in prizes. This undoubtedly proved the finest Rose Show of the year, with the exception, perhaps, of the Crystal Palace, but, unfortunately, the weather was most unpropitious. The few days of good weather previous to the Show told considerably upon the blooms, and they were exhibited on the whole in much better condition than those shown at Manchester the previous week; they were indeed of first-class quality both as regards size, freshness, and colour; and light Roses, especially Hybrid Perpetuals, were shown in greater numbers and better condition than we have before seen this season. Messrs. Cranston & Co., Hereford, staged a very fine box of their new Rose Mrs. Jowitt; the colour was very bright and the foliage healthy, clean, and large, not a trace of spot or mildew to be found upon it. The same firm exhibited a magnificent box of Mdle. Marie Rady; and Messrs. James Dickson & Sons, Newton Nurseries, Chester, a fresh and fine stand of Marie Baumann, which the leading rosarians considered had not been shown in such condition this season.

NURSEYMEN'S CLASSES.—For twenty-two varieties, distinct, single trusses, first, Messrs. Cranston & Co., Hereford, with beautiful flowers, and much ahead of any others in this class. Amongst their most noteworthy blooms were Abel Carrière, Marie Baumann, La Duchesse de Morny, very fine; Duke of Wellington, Madame Victor Verdier, Emilie Hausburg, Duc de Rohan, Mrs. Laxton, full and very fine; Dr. Andry, Fisher Holmes, Souvenir de Mons. Paul Neyron, Edouard Pynaert, Reynolds Hole, Dupuy Jamain, Etienne Levet, Jean Liabaud, Mdle. Eugénie Verdier, Exposition de Brie, Catherine Mermet, Mary Pochin, A. K. Williams, Louis Van Houtte, and La France. Second, Messrs. Paul & Sons, Old Nurseries, Cheshunt, with good blooms among others of Mrs. Baker, Sénateur Vaisse, Edouard Dufour, John Stuart Mill, Souvenir d'Elise Vardon, Lord Beaconsfield, Louis Van Houtte, Annie Wood, Miss Poole, Xavier Olibo, Antoine Ducher, Duke of Edinburgh, and Marquis of Salisbury. Third, G. Prince, Oxford, with Marcelin Roda, Catherine Mermet, Duc de Montpensier, Duchesse de Vallombrosa, Perle des Jardins, Annie Wood, Capitaine Christy, Horace Vernet, and Duke of Edinburgh as the leading flowers. Messrs. Francis and Arthur Dickson & Sons were the other exhibitors and staged excellent blooms.

In the class for thirty-six varieties, three blooms of each, there were six entries, and the competition was very close. First, Messrs. Cranston & Co. with Mrs. Jowitt, very fine; Alfred Colomb, Le Havre, Charles Lefebvre, Elie Morel, La France, Capitaine Christy, Baronne de Rothschild, Sénateur Vaisse, Niphetos, Sir Garnet Wolseley, and Catherine Mermet. Second, Messrs. Davison & Co., Hereford, with good blooms of the following—Charles Wood, Beauty of Waltham, John Stuart Mill, Mdle. Marie Rady, Alfred Colomb, Sultan of Zanzibar, and Marguerite Brassac. Equal thirds, Messrs. Paul and Sons and G. Prince, Oxford; the former having good blooms of Prince Arthur, Camille Bernardin, Duc de Rohan, La France, Capitaine Christy, A. K. Williams, Sénateur Vaisse, and Louis Van Houtte; the latter having Perle des Jardins, Annie Wood, La France, Souvenir de Mons. Paul Neyron, Etienne Levet, and Mons. E. Y. Teas in superior condition.

In the open class for thirty-six varieties, single blooms, first, T. Jowitt, Esq., Old Weir, Hereford, with magnificent blooms, including Alfred Colomb, Mons. Noman, Duke of Wellington, Lord Herbert, Beauty of Waltham, Mdle. Marie Rady, La France, Ferdinand de Lesseps, Charles Lefebvre, and Horace Vernet in such condition as is rarely seen. Second, Mr. Griffiths, Hereford, with good blooms of Fisher Holmes, Beauty of Waltham, Alfred Colomb, Sir G. Wolseley, Marie Baumann, Mrs. Laxton, La France, and Comtesse de Sereuye. Third, Messrs. James Dickson & Sons, Chester; John Hopper, Xavier Olibo, Beauty of Waltham, Mons. E. Y. Teas, being extremely fine. In the class for twelve blooms of any one Hybrid Perpetual Rose, first, Cranston & Co., with Mdle. Marie Rady above alluded to. Second, James Dickson & Sons with Marie Baumann. Third, G. Prince with Alfred Colomb. Extra prize, T. Jowitt, Esq., with John Stuart Mill. All the stands were splendid.

AMATEURS' CLASSES.—Thirty-six varieties, single blooms. First, T. Jowitt, Esq., with a magnificent stand. The bloom of A. K. Williams was undoubtedly the best in the Show; Mdle. Marie Rady, Sir G. Wolseley, François Michelin, Louis Van Houtte, La Duchesse de Morny, Comtesse de Serenye, Marie Baumann, Madame C. Crapet were also in grand condition. Second, G. P. Hawtrey, Esq., who staged among others splendid blooms of La France, Duke of Edinburgh, Mdle. Marie Rady, Marie Baumann, Thérèse Levet, and Marguerite Brassac. Third, G. H. Berrington, Esq.; Louis Van

Houtte, La France, Sir G. Wolseley, Perle des Jardins, and François Michelin being the finest blooms. Fourth, C. W. Newmann, Esq., Wyncote, Allerton (gardener, Mr. Mease). The finest bloom in this box was Maréchal Niel, and without doubt the finest in the Show of that variety. Sir G. Wolseley and Marie Baumann were also good. The blooms were smaller than those shown by the previous prize-takers, but very good considering the locality in which they were grown. There were seven entries in this class.

For twelve varieties, single blooms, of Teas or Noisettes, Messrs. T. Jowitt and J. P. Hawtreys were each awarded equal first prizes, the former having good fine examples of Niphetos, Alba Rosea, Rubens, and Maréchal Niel; the latter excellent blooms of Caroline Kuster, Catherine Mermet, Souvenir de Mons. Paul Neyron, and Amazon.

Amateurs' classes for Roses grown within the Hundred of Wirral. —For twenty varieties, single blooms, first, T. B. Hall, Esq., whose stand included Eugène Furst, a fine dark flower and much admired; although much resembling Louis Van Houtte, the wood was quite distinct; Etienne Levet, Thomas Mills, Mdle. Marie Finger, and Sénateur Vaise were also good. Second, Mr. Joseph Meyer; Mdle. Marie Rady and Prince Camille de Rohan being the finest blooms. Third, Mr. T. Griffiths with a good stand containing fine blooms of Paul Neyron and Charles Lefebvre. For twelve varieties, single blooms, first, W. Just, Esq. (gardener, Mr. McMaster), with a good stand of blooms which included a very large example of Mdle. Hippolyte Jamain. This bloom was also awarded the prize for the premier Rose. Second, Mr. Hodgson; third, Mr. J. Hargreaves; fourth, Mr. J. T. Raynes. For twelve varieties, single blooms, Messrs. D. Walford, J. Myers, and T. B. Hall, were awarded the prizes in the order named. Six varieties, single blooms, Messrs. Just, Hodgson, Raynes, and Gaman were the prizetakers respectively. For three varieties, single blooms, the awards went to Messrs. Just, Hodgson, and Hargreaves.

MISCELLANEOUS EXHIBITS.—Mr. J. Smith, nurseryman, Cloughton, exhibited a collection of flowering and foliage plants, which occupied one end of the tent. The other end was occupied with plants from Messrs. F. and A. Dickson & Sons, Chester, and Mr. Smith, Dell Nursery, Rock Ferry, both collections including some clean well-grown decorative plants. Messrs. F. and A. Dickson & Sons also exhibited a box of Roses, which included good blooms of Richard Wallace, Alfred Colomb, Duc de Rohan, Horace Vernet, and Jean Liabaud; Mr. Griffiths, Hereford, a box of Marie Baumann and of Comtesse de Serenye, the latter being remarkably good. The Committee of Management and Mr. Smith, the Honorary Secretary, laboured assiduously to render the Show a success. New societies, however, do not always adopt the best system of managing the exhibitions in respect of the numbers, prize cards, &c.; but *experientia docet*.

The Judges were the Rev. H. H. D'Ombraun; Messrs. Elliott, Francis, and Prince.

PRIMROSES.

THE common Primrose, when well grown in rich light soil, will in the third year become a large plant and most useful for early spring flowering. Seedling plants will be found near any old clump, and these should now be planted out in the borders. Next year they will form good flowering clumps, producing a dozen flowers or so, and the year following if properly grown they will bear flowers by hundreds. I have counted as many as 350 flowers at one time on a single three-year-old clump of the common yellow Primrose. The coloured varieties of this flower are a so very well worth attention. I have at least fifty well-marked varieties here, varying from the deepest crimson to the purest white, and from the deepest purple to rose colour, and all these are of our own raising over the last five years from carefully selected seed. Originally I commenced with choice Irish seed, which was sown along the two sides of a beechwood fence running north and south, so that the seedlings were in shadow half the day. The small plants thus raised were pricked out in different situations, some in the open borders and others in shade, but I do not see that one place suits better than another. In two years they are fine plants, and they remain good for four years, after which I remove them to the wild garden. The flowers from old plants become smaller; and where so many are grown, it is too much trouble to divide them when they can be replaced so easily with seedlings which we expect to be of finer quality.

To maintain a progressive improvement in the strain I carefully weed out all inferior colours the moment they flower, and take great care of the best. I do not trouble to gather seed, but allow the plants to scatter their seeds around them, raking the ground and shaking out the seeds when ready. The seedlings are thus grouped around the parent plant, and as the good varieties are known the seedlings are safe. I believe we have thus obtained as good qualities in every colour as are to be found anywhere. In the early spring nothing can be more lovely than thousands of Primroses of every shade of colour. All our beds are edged with them, and they are also pricked out on the rockeries and on the permanent borders. They do not do well for massing, so we

have discarded them from the more formal spring bedding.—W. BROCKBANK, *Brockhurst, Didsbury*.

HAWKHURST HORTICULTURAL SOCIETY.

THE tenth annual Exhibition of the above Society was held under very favourable circumstances. As a consequence of the district comprising a very extensive and much-favoured part of Kent, the competition was and invariably is very keen throughout the Show. There is now no occasion for any open classes for plants to "make a show," the local plant-growers being quite equal to the emergency. There is yet, however, still room for improvement in the fruit and vegetable classes. Collections of vegetables were staged in numbers in two classes, but many were much too coarse, especially the roots. Liberal prizes were offered to cottagers, and a very creditable display of fruit and vegetables sufficient to fill a large tent was produced.

The premier six stove and greenhouse flowering plants were staged by J. C. Fisher, Esq. (gardener, Mr. C. Nicholls). Some of the best of these were the well-flowered examples of *Bougainvillea glabra*, *Erica Thomsonii*, and *Statice imbricata*. The best four exhibited by W. J. Neve, Esq., Cranbrook (Mr. F. Dean), included good plants of *Clerodendron Balfourianum* and *Allamanda Schottii*. Fine-foliaged plants were well shown by Mr. Nicholls; the Right Hon. G. J. Goschen, Hawkhurst (Mr. Gilmour); Mr. F. Dean; Captain Oakes, Sandhurst (Mr. Hodgkins); Sir E. T. Hardinge (Mr. Rummery), Hawkhurst, and others. The specimen of *Acalypha musaica* shown by Mr. Gilmour was strikingly beautiful. This exhibitor was also awarded the first prize for six exotic Ferns and four *Caladiums*. Of the former the specimens of *Davallia Mooreana*, *Adiantum gracillimum*, and *Gymnogramma peruviana* were very praiseworthy. The premier prize group of Fuchsias staged by Mr. Nicholls included beautifully grown specimens of Lucy Mills and Wave of Life. Lady Herschell, Hawkhurst (Mr. L. Barnes), also staged good Fuchsias. Mr. Hodgkins secured the first prizes for Gloxinias and Zonal Pelargoniums. Dr. Newington, Ticehurst (Mr. W. Salcombe), was awarded the first prizes for both twelve and twenty-four cut Roses. The blooms were fairly good in both instances.

The best collection of ten varieties of fruit shown by Mr. Barnes included good examples of Buckland Sweetwater and Mrs. Pince Grapes. Two other collections were staged. Mr. Milham, Rolvenden, secured the first prize for eight dishes of fruit. The best two bunches of black Grapes were shown by Mr. B. Reckes, Wadhurst Castle Gardens, the variety being Black Hamburgh. Mr. Barnes was a close second with Mrs. Pince, and in a corresponding class for white Grapes was placed first with well-coloured clusters of Buckland Sweetwater. The Melons shown as a rule were very poor, the notable exceptions being the premier prize fruit of Turner's Scarlet Gem and Earl of Beaconsfield, green flesh, shown by Mr. Gilmour and Mr. Hodgkins respectively. Cucumbers also were second-rate.

Mr. Barnes had the best collection of vegetables, but was very closely pressed by Mr. Gilmour. The latter put up a very fine dish of Stamfordian Tomatoes. Other successful exhibitors of fruit and vegetables were Mr. Milham; Canon Jeffreys, Hawkhurst; Mr. Iggulden, Mr. Willards, and others. Mr. W. Apps, Clive Vale, Hastings, exhibited, not for competition, some very fine Early Red Tomatoes, Tender and True and Earl of Beaconsfield Cucumbers, and some very close heads of Dean's Snowball Cauliflower.

Mr. Potten, Sissinghurst Nurseries, brought a good collection of plants, which added much to the variety of the Show. Among these we noticed the double-flowering tuberous-rooted *Begonias* Comtesse Horace de Choiseul, Phosphorescent, and Emilie Lemoine; and good single-flowering varieties were W. E. Gumbleton, Zambezi, and Potten's Exquisite. The most striking tricolor Pelargoniums were Master-piece, Prince of Wales, E. R. Benyon, Empress of India, and Proteus. Good Zonal varieties were Gathorne Hardy, Dr. Denny, New Life, and General Grant; and of doubles Madame Thibaut, Nymph, Madame Thiers, and Lucie Lemoine. Mr. W. Knight, nurseryman, Battle, exhibited three boxes of cut Roses, many of which were very good, notably Marie Baumann, Dr. Andry, Camille Bernardin, Mdle. Marie Rady, Alfred Colomb, and Exposition de Brie. Messrs. G. Bunyard and Co., Maidstone, sent six boxes of very fine cut Roses, the colour of the majority being remarkably bright. Some of the best blooms were Capitaine Christy, Baron Haussman, Beauty of Waltham, La France, Etienne Levet, Madame Charles Wood, Elie Morel, Marie Baumann, Alfred Colomb, Duke of Edinburgh, and Magna Charta. An exhibition of arts and manufactures was held in connection with the Flower Show, and the grounds adjoining the residence of Sir E. T. Hardinge, Bart., were, with the park, open to the public.

POTATOES.

NEVER since I have been in the county of Wilts have I seen such an abundance of garden produce as there is in this neighbourhood at present. Cottage gardens especially are a pleasure to look at, and the contrast between this year and last is very remarkable. Potatoes, the poor man's vegetable, were last year quite a failure, while Groundsel and other quick-growing weeds seemed to have entirely taken possession. Hoeing was useless, and weeding seemed to be labour thrown away, for the weather, which proved so disastrous to the cultivated vegetables, was

exactly that which Groundsel, &c., delighted in. Now, although I must confess that Groundsel is not entirely absent, for there is such a crop from seed of last year as will take some time to get under, the Potatoes are a marvellous crop. I am digging Myatt's Prolific at the rate of 12 tons per acre, the quality of which, too, is excellent. It is not expected that any other patch will yield quite so well as this one, but everywhere the ground seems full of Potatoes, from two dozen to thirty large tubers turning up from a root; and even in some of the cottage gardens, where the seed which was planted was very inferior, the yield is extremely good.

That dread enemy the *Peronospora* is quite a month later in making its appearance, and I am in hopes that personally I shall not suffer much from its ravages; for although Potatoes were still growing fast when the first unwelcome blotches were seen in our neighbouring village, I decided that 8 to 12 tons an acre was worth being satisfied with, and had all the tops carefully pulled off the variety I have named, with the exception of a few for experiment, or rather for convincing unbelievers. I do not think it is of any use removing the tops after they become badly spotted, for the disease has then already circulated through the whole system. It requires, of course, a strong nerve and a hard heart to cart away the foliage while it is fresh and vigorous, but "half a loaf is better than none," and I shall be perfectly satisfied and extremely thankful if I can secure such a crop as we have at present. We have planted Borecole, Cauliflower, Broccoli, &c., between the rows of Potatoes where the tops have been removed, for the yield being so abundant the usual quantity of ground is not cleared, and some crops of Cabbages, Peas, &c., have had to be removed before they were half over to make room for the indispensable winter stuff.

Last year I was much afraid our good friend the old Ashleaf was going to leave us altogether, for more than half of it seemed to grow out of its true character, and it was very badly diseased. The truer the stock, the worse the disease and the less the crop seemed to be, but I am happy to say it seems now to have taken a new lease of life; and even those which were of doubtful character last year, and were on that account kept separate, have mostly returned to the normal habit. This is a great consolation, for none of the so-called improved Ashleaves are equal to this for earliness or shortness of haulm, both of which points are of interest to those who grow Potatoes in frames.

It is too early to say what late Potatoes will do. I am supposed to have only two varieties, Scotch Champion and Magnum Bonum. The Scotch Champion from seed saved here is growing moderately vigorous, and a great many small Potatoes are already at the roots. The purchased seed grows much stronger and flowers more profusely, but, from what I can see at present, is not making Potatoes so fast, yet I have no doubt about both stocks being true, as they are alike in all other respects. The Champion was last year of splendid quality, and although many were diseased and useless, there were more good tubers left than we had from any other sort. I cannot understand Champion being placed in the second class for quality. It was the only Potato I tasted last year which was equal to the imported German Reds, and good as they were when properly cooked, they were only half as good as Champion. Soils and seasons we know have a great deal to do with quality, and it may be that heavy soil and a wet season do not disagree with our Scotch friend. It is a pity it is not a more handsome tuber, but we have had many proofs that beauty and good quality do not always go together even in Potatoes.

Magnum Bonum was a fair crop with no diseased tubers, but that is all I can say for it at present, for although it was tried several times during the winter, spring, and even the summer, it was never fit to eat. It has been planted again in the hopes that a better season may make it palatable. There is one thing which ought to recommend it, at least to slovenly cultivators—there is not much chance for weeds to grow where it is planted. Its haulm is 5 feet high, even on poor ground, and its ample foliage is more than sufficient to smother the otherwise irrepressible Groundsel. When the disease has thinned its leaves and made room for the light to penetrate some Potatoes may be formed, but I have not much hopes before that time in this most luxuriant of seasons. Be it understood that I only speak of last year, and this in regard to Champion and Magnum Bonum, as I had no practical experience with them before.

Seed of the early kidney-shaped varieties cannot be looked after too soon now. I make a point of selecting them with great care, and place them up endways on boards in a cool shed at once, where they remain undisturbed till planting-out time. Last year I was amply paid for all this trouble, for although Potatoes all around were almost a complete failure, I had a very fair crop of Myatt's Prolific. Those who have to purchase early kidney varie-

ties for planting should always do so before winter; procuring them in spring is throwing money away.—WM. TAYLOR.

GLOXINIAS AND TUBEROUS-ROOTED BEGONIAS AT THE READING NURSERIES.

OF late years both Gloxinias and tuberous-rooted Begonias have, in common with many other choice flowering plants, been much improved by the efforts of hybridisers. The success attending these efforts is really remarkable; but what I am inclined to think also very important is, that their labours have probably been mainly instrumental in bringing into prominence the fact that both are easily propagated from seed. Not only can they be thus readily and cheaply increased, but what is very satisfactory, can, if the seed is saved from a good strain, be relied on for giving bloom equally as good as, if not superior in quality to, the originals. Seedlings, too, as with almost all kinds of plants, are very vigorous, being easily grown into good flowering plants the first season. By skilful treatment plants raised from cuttings (this applies more especially to the Begonias) are in one season grown into specimens, but in the majority of private growers' hands they are but puny objects as compared with the fine branching and floriferous seedlings.

Few growers have taken greater pains with the improvement of the strains of Begonias and Gloxinias than the Messrs. Sutton and Sons of Reading, and none probably have met with greater success. At the present time there are two houses filled with well-grown plants of grand varieties. The former from last year's sowing are now at their best, and for brilliancy and variety are fully equal to, if not superior to a house of Zonal Pelargoniums, as may sometimes be seen at Pearson's, Cannell's, and other nurseries. Names both with these and Gloxinias are entirely dispensed with, but every variety has its registered number. In addition to their own very superior seedlings all the best newest varieties advertised by English raisers and many continental novelties are regularly added. The strain has heretofore been rather weak in light varieties, but will be much benefited by the later additions of several raised on the continent. I also noticed several fine double-flowering varieties. The seedlings generally are exceptionally dwarf and branching in habit, bearing a profusion of large flowers of good form and substance. In other houses there are many thousands of healthy spring-sown seedlings, many of which will be grown-on to succeed those now in flower, the rest being grown to form bulbs for distribution.

The Gloxinias are grown in equally as large numbers and are also particularly good, either with regard to the blooms or the foliage, the latter being alone extremely ornamental, having a drooping or reflexed habit, so much so as to nearly conceal the pots in which they are grown. This excellent quality is noticeable in the innumerable spring-sown seedlings as well as in the large specimens 3 feet through. The former are flowered the first season in 4-inch pots, and several houses of them will shortly present a grand appearance, and to me are more attractive than larger plants, of which there are a great number now in full bloom. The value of the seed saved from these must be great, the strain being so excellent. Some of the flowers I had the curiosity to measure ranged from 4½ to 5 inches in diameter, the others being similarly large and of great substance and variety of colour. These measurements may appear exaggerated, but anyone can verify the truth of these and other statements by calling at the nurseries.

Dry bulbs and seed only are distributed by this firm, and probably their advice on the starting into growth of the former and the germinating of the latter may be of service to many of the readers of this Journal. To start the bulbs into growth it is advised that they be treated somewhat similarly to Dahlias, or in other words, that previous to being potted they be placed on a gentle and moist hotbed, potting them off when they have emitted roots. They are placed in small pots in the first instance, from which they receive a final shift into either 5 or 6-inch pots. The soil employed to consist of three parts turfy loam to one of leaf soil, with an addition of silver sand. For the seed pots or pans the quantities of soil are reversed—three parts well decomposed leaf soil to one of loam and some sand being recommended. Much importance is attached to the use of good leaf soil in preference to peat, especially in the early stages of growth. When sown, the seed is pressed into the surface of the soil, placed in a gentle heat—not necessarily bottom heat—covered with glass, and kept uniformly moist, and shaded. The seedlings are pricked off rather thickly in well-drained 4-inch or 5-inch pots, afterwards placed singly into small pots and gradually grown on.

The treatment of Gloxinias is substantially the same as that recommended for Begonias. In either case the whole of the packet of seed should not at once be sown, but the sowing ought to

extend from February to May; the latter month, and even June, being considered the most certain time of germinating the seed, which fact ought to be noted by inexperienced growers.—W. IGGULDEN.

[We have some Begonia flowers from Messrs. Sutton, which are very large and varied and brilliant in colour.—EDS.]

THE HOLLYHOCK DISEASE.

WE much regret having received during the week examples of this disease from Wiltshire, South Yorkshire, Essex, and Surrey,

which indicates that its outbreak is somewhat general. We can best reply to our correspondents by publishing the following admirable engravings and notes of the disease by Mr. W. G. Smith, which appeared in our columns six years ago.

"*Puccinia malvacearum* first appeared in Chili on a species of *Althæa*; it next appeared in Australia, where it proved extremely destructive to the Hollyhoek (*Althæa rosea*, a native of China). Last June it was recorded from France, while at the beginning of July it had reached this country, where it immediately commenced its ravages on our Hollyhocks with great virulence, and completely killed to the ground all the plants it attacked both in



Fig. 19.—PUCCINIA MALVACEARUM, Mont.

- A, Hollyhoek leaf infected with the disease (natural size).
 B, Pustules bursting through cuticle, with epidermal hairs, on which some of the spores are scattered. Enlarged forty diameters.
 C, Section through pustule (or sorus), showing the clusters of uni-septate spores *in situ*. Enlarged forty diameters.

- D, Group of uni-septate spores, seated on the distinct stems, or peduncles. Enlarged three hundred diameters.
 E, Hairs from Hollyhoek leaf, to show proportion between the hairs and the fungus. Enlarged three hundred diameters.

private gardens and in nurseries. From the south of England it rapidly spread to the north, and during the early spring of this year in certain districts near London nearly every leaf of *Malva sylvestris* was blackened by this new pest. It has also been recently common in France, attacking the indigenous *Malvaceæ*.

"The Hollyhoek disease is remarkable for its extreme virulence, for on affected plants a black spot is not merely seen here and there, as in common with many species of *Puccinia*, but the

affected plants have every leaf blackened by these obnoxious pustules or sori, which are entirely composed of uni-septate spores seated on stems, as seen in section at C, magnified forty diameters. Every sorus contains more than ten thousand spores, and in the specimen sent for identification I counted more than a thousand sori on each leaf; therefore each individual leaf was capable of producing ten million perfect plants of the *Puccinia*. Figures altogether fail to give any idea of the enormous reproductive

powers of this mischievous fungus, and as for a cure none is known or likely to be known. The only method of stamping it out appears to rest in at once taking up and burning root and branch of every infected plant.

"The accompanying illustration with description, drawn from Nature with a camera lucida, will serve to give the readers of this Journal a good idea of the plant as seen under the microscope, and the smallness of the pest and its spores when compared with the hairs and breathing pores of the Hollyhock leaf itself."

Mr. Brotherton states on page 69 that he has prevented the spread of the disease by removing the affected leaves as they appear and burning them, and it will be instructive to know if the cuttings which he intends striking form plants free from the destructive malady. If any of our readers can state a remedy for this disease we will gladly publish it, as it is with regret that we have observed that the grand old plant the Hollyhock is seldom seen in gardens now.

GOOD NEW VEGETABLES.

I QUITE agree with your correspondent, Mr. Muir, on page 3 of the Journal, in relation to Carters' Defiance Cauliflower. Seed was sown in a cold frame on March 7th, the plants being grown in an exposed situation, and fine heads were ready for cutting about the 1st of this month. Veitch's Early Forcing Cauliflower was also sown at the same time, and grown exactly under the same conditions. I find it equally early; the heads are beautiful, white, and a little larger in size than Carters' Defiance. It is also a little larger in growth, but would have ample room to develop if planted 1 foot apart. Carters' Mont Blanc Cauliflower grows larger than the above two, and requires a little more space between the plants. Sown at the same time and grown by the side of the others it forms a good succession. It is just commencing to form heads. Ellam's Early Spring Cabbage is an excellent early variety; it hearts quickly, and is of moderate size and very hardy.—WM. BARDNEY.

NATIONAL CARNATION AND PICOTEE SOCIETY'S SOUTHERN SHOW.

JULY 28TH.

THE Show generally was fine, and some of the blooms will long be spoken of amongst those conversant with the qualities which constitute a good flower. Amongst those which were particularly fine were Admiral Curzon, s.b. exhibited by Mr. Dodwell in his stand of twelve which won first honours as the premier Carnation in the Show, and well it deserved to be placed in that position. It was particularly fine in colour, with beautiful bold markings, and such a flower is rarely seen of that fine old variety. The premier Picotee was won by Mr. Turner with a beautiful new flower named Baroness Burdett Coutts, a medium-edged purple, with a broad smooth petal and good in marking; it well deserved its position.

Amongst new Carnations Mr. Dodwell was awarded first-class certificate for Robert Lord, s.b. This variety I have previously said ought to have been premier last year. It was not so good as then, but still sufficiently fine as to strike the Judges as being worthy of the high honour conferred on it. In other scarlet bizzarres Mr. Dodwell also received first-class certificate for Arthur Medhurst, a fine flower with the markings of Admiral Curzon, but a fuller flower, with more petals than that fine variety—very promising and sure to please; also to a variety called Fred, which won second and third honours in its class, the flowers being only young but of fine quality. First-class certificates were also awarded to the following:—Crimson Banner, a c.b. (raiser, Mr. B. Simonite), grown and exhibited by Mr. James Douglas; very fine. Mr. Dodwell obtained a similar honour for the pink and purple bizzarres; one raised by himself and called Squire Llewelyn, a large full flower with splendid markings, not confused but nearly sure to be a telling variety. The other certificate was for a flower called Master Fred, raised by Mr. Hewitt of Chesterfield, a particularly fine flower with very bold markings, and when young high in colour, which tones down as the flower ages. First-class certificates were also awarded to Mr. C. Turner, Slough, for scarlet flake Figaro, raised by Dr. Abercrombie of Cheltenham, a fine flower with brilliant markings, and very pure in the white; a flower which will be indispensable in the future. Mr. Dodwell also obtained a similar award for John Bull, a scarlet flake of the largest size, with a broad and well-marked petal. Mr. Dodwell exhibited many other good seedlings in his stands, and to them may be attributed his being able to take first honours both in twelves and twenty-fours. Amongst the best were Thomas Moore, c.b., a flower of brilliant colour, and one

which is sure to tell. Mrs. James, R.F., a high-coloured flower, was particularly large and fine. Other good seedlings by the same grower were George Rudd, s.b., an improved True Briton, R. Holliday, c.b., and two sports in scarlet flakes from Admiral Curzon and Dreadnought respectively.

Picotees generally were well shown by Mr. C. Turner and Mr. Douglas; Mr. Turner being very fine with the following seedlings:—Baroness Burdett Coutts, winning premier as before stated; Mrs. A. Chancellor, H.P.P., a flower of the largest size with a fine heavy edge, no doubt the best flower in its class; Constance Heron, another fine flower with a heavy edge of brilliant scarlet; Lady Carington, a medium-edged rose of good properties.

The Society gave first and second prizes in each class for seedlings, for which there was a close competition; I, however, do not recommend this, as it is a great labour to select the best seedlings, and is sure always to retard the opening of an exhibition. A list of the awards and principal varieties is appended.—G. RUDD.

CARNATIONS.—In Class A, for twenty-four blooms, not less than twelve varieties, Mr. E. S. Dodwell, Larkhall Lane, Clapham, was awarded the first prize for a good collection, including the following varieties:—Ben Simonite, Rifleman, Admiral Curzon, J. D. Hextall, Thomas Moore, A. Medhurst, Squire Meynell, very fine; John Bull, William Monay, good form; R. Holliday, Robert Lord, a seedling, Dr. Masters, William Murray, John Keet, Florence Nightingale, G. Rudd, excellent; seedling s.f., and Unexpected. This collection was exceptionally fresh and bright, the blooms being of good form and the colours clear. F. Whitbourn, Esq., Loxford Hall, Ilford (gardener, Mr. Douglas), was second with a good collection, but some of the blooms were rather loose. The varieties were Falconbridge, Dreadnought, Sybil, Earl Stamford, Lord Lewisham, John Simonite, Clipper, Sarah Payne, Albion's Pride, Sportsman, and Juno. Mr. Charles Turner followed with Albert Chancellor, fine; Figaro, bright; Rifleman, and Diadem, among many other good blooms. Fourth, Mr. H. Hooper, Vine Nursery, Widcombe Hill, Bath. The above were the only exhibitors in the class.

In Class B, for twelve dissimilar blooms, the chief position was again obtained by Mr. E. S. Dodwell with neat blooms of the following varieties:—Master Ford, fine; Admiral Curzon, rich colour; Rifleman, large; Robert Lord, Sarah Payne, Thomas Moore, Squire Llewelyn, John Bull, Florence Nightingale, John Keet, and Mr. James, very fine. Mr. Douglas was second with a very even fresh collection; Mr. John Hines, Ipswich, third; Mr. Job Matthews, Wandsworth Road, S.W., fourth; Mr. John Buxton, Manor Street, Clapham, fifth; and Mr. H. Catley, Bath, sixth. There were six entries in that class.

In Class C, for six dissimilar blooms, Mr. Arthur Medhurst, Priory Road, was a good first with Admiral Curzon, Mr. James, Squire Meynell, Sarah Payne, Col. North, and John Bailey; Mr. H. Matthews, 439, Wandsworth Road, second; and J. Abercrombie, Esq., M.D., Cheltenham, third, these being the only exhibitors.

In Class D, for single specimens, there was good competition, over 150 blooms being staged. *Scarlet Bizzarres.*—Mr. Charles Turner was first with a fine example of Admiral Curzon; Mr. E. S. Dodwell being second, third, fourth, and fifth with Fred, Admiral Curzon, and Arthur. *Crimson Bizzarres.*—Mr. Douglas was first, second, and fourth with Rifleman, and fifth with Jenny Lind, Mr. Dodwell being third with a seedling. *Pink Bizzarres.*—Mr. Turner was first with Sarah Payne, second with the same variety, and fifth with James Taylor. Mr. J. Hines was second with Sarah Payne, and Mr. Douglas third with the same variety. *Purple Flakes.*—Mr. Douglas was first, second, and third with Earl Stamford, Mr. Turner fourth with Osmond, and Mr. Dodwell fifth with a seedling. *Scarlet Flakes.*—Mr. Turner was first with Jupiter; Mr. Douglas second, fourth, and fifth with John Bailey and Sportsman; Mr. Dodwell was third with a seedling. *Rose Flakes.*—Mr. Dodwell was first and fourth with seedlings, Mr. Henry Hooper second with Sybil, Mr. Douglas third and fifth with John Keet.

PICOTEES.—In Class E, for twenty-four blooms, not less than twelve varieties, Mr. Charles Turner was first with an excellent collection, in which were the following varieties:—Her Majesty, very fine; Baroness Burdett Coutts, Mrs. A. Chancellor, beautiful; Mr. Payne, Dr. Abercrombie, Lucy (Addis), Constance Heron, J. B. Bryant, Lady Salisbury, Zerlina, Royal Visit, Brunette, good; Lady Boston, Rev. J. B. M. Camm, excellent; Lady Carington, Louisa, and Clara Penson. Mr. Douglas followed with good blooms of Princess of Wales, Royal Visit, Alliance, Brunette, and Mrs. Douglas. Mr. E. S. Dodwell was third; Mr. T. S. Ware, Hale Farm Nursery, Tottenham, fourth.

In Class F, for twelve dissimilar blooms, Mr. Douglas was first with a pretty collection including Brunette, very good; Mrs. Payne, Norfolk Beauty, Thomas Williams, Miss Williams, Nymph, Zerlina, Ethel, Mary, Rev. F. D. Horner, Edith Dombrain, and Morna. Mr. E. S. Dodwell was second with Minnie, Mrs. Matthews, Edith Dombrain, Mrs. Dodwell, Lady Louisa, Mrs. Payne, Novelty, Alliance, Ethel, Daisy, Lizzie Jones, and Tinnie. Mr. J. Matthews, Wandsworth Road, was third; Mr. John Hines, fourth; Mr. J. Buxton, fifth; and Mr. H. Catley, sixth.

In Class G, for six dissimilar blooms, Mr. Arthur Medhurst was first with Edith D'Ombrain, Mrs. Dodwell, Zerlina, Alliance, Thomas Williams, and Miss Lee; Master H. Matthews was second, and Dr. Abercrombie third.

In Class H, for single specimens, a large number of blooms were staged—viz., about 130. *Red Heavy-edged.*—Mr. Douglas was first,

second, third, and fourth with Brunette and J. B. Bryant, Mr. Turner being fifth with the latter variety. *Red Light-edged*.—Mr. Douglas was first, second, and third with Mrs. Williams; Mr. H. Hooper fourth with Grande Duchesse; and Mr. John Hines fifth with Clara. *Purple Heavy-edged*.—Mr. Douglas was first with Zerlina; Mr. Turner second, third, and fourth with Mrs. A. Chancellor; and Mr. E. S. Dodwell third with a seedling. *Purple Light-edged*.—Mr. Turner was first and second with Her Majesty, third with Clara Pension, fourth with Baroness Burdett Coutts; and Mr. Dodwell fifth with Ann Lord. *Rose Heavy-edged*.—Mr. Turner was first, third, and fifth with Mrs. Payne, second and fourth with Royal Visit and Fanny Helen. *Rose Light-edged*.—Mr. Turner was first with Mr. Allcroft and fourth with Lucy; Mr. J. Hines second with Mr. Allcroft; and Mr. H. Hooper third and fifth with Beauty of Bath. *Light-edged on Yellow Grounds*.—Mr. Turner was first with Miss Abercrombie, third with Lady Biddulph, fourth with Meteor, fifth with Lightning; Mr. Douglas second with Princess Beatrice.

In Class I, for twenty-four blooms not less than twelve varieties, of Sells, Fancies, or yellow grounds, Mr. C. Turner was first with Constance, Little Harry, Bertram, Mrs. Matthews, Gem, Duchess of Connaught, Zerlina, Field Marshal, Eurydice, fine; Lord Rosebery, Rosa Bonheur, Florence, Elysian Beauty, Martial, Captain Dalgety, Phœbus, Cupid, handsome; Elegant, Flirt, Ann May, Duke of Connaught, and Brighton Gem. Mr. Douglas was second, Mr. Hooper third, and Mr. T. S. Ware fourth.

In Class K, for twelve dissimilar blooms, the prizes were obtained by Mr. E. S. Dodwell, Mr. A. Medhurst, Mr. H. Catley, Bath; and Dr. Abercrombie, Cheltenham, in the order named.

In Class L, for twelve plants in pots, including Carnations and Picotees of distinct varieties in bloom, there were only two exhibitors, Mr. Charles Turner gaining the chief prize with healthy well-flowered plants of Queen of Summer, Mr. Payne, Louisa, Lord Chelmsford, Mr. Smart, Juliana, Lady Boston, Mr. A. Chancellor, Lothair, Her Majesty, and Rifleman. Mr. Douglas was an excellent second with Brunette, Prince of Orange, Fanny Helen, Her Majesty, Lothair, Mr. Rivers, J. B. Bryant, Lord Lewisham, Falconbridge, Clipper, Rifleman, and Cleopatra.

In the classes for seedlings Mr. Dodwell took four first and six second prizes. Mr. Douglas obtained one first and one second prize; and Mr. Turner was awarded five first and two second prizes.



At a General Meeting of the ROYAL HORTICULTURAL SOCIETY held on Tuesday last, Col. R. Trevor Clarke in the chair, the following candidates were elected Fellows of the Society—viz., Sidney Reynett Brown, E. H. Cardwell, Henry Lee Corlett, George Deal, Miss Gowan, Captain Thomas Bridges Heathorn, Mrs. J. R. Hoare, Charles W. Pridham, and Ernest William Rogers.

— WRITING to us on GALVANISED WIRE, "W. A. B." has found a thick coating of paint prevent the leaves and growths of Vines being injured, but where the paint was thin the result was nearly as bad as with no paint at all. We shall shortly publish the results of some experiments with this and other wire that will not be devoid of interest to our readers.

— WE have received the schedules of the two following CHRYSANTHEMUM SOCIETIES—Kingston and Surbiton, which will hold its Exhibition on November 18th and 19th in the Drill Hall, Kingston, when in addition to liberal prizes in numerous classes, the twenty-five guinea challenge vase will be again offered. It will be remembered that this class is for forty-eight distinct Chrysanthemum blooms, to include twenty-four incurved and twenty-four Japanese varieties, and is open only to subscribers of one guinea. The Birmingham and Midland Counties Society will hold its Exhibition in the Town Hall, Birmingham, on November 24th and 25th, when numerous prizes will be offered for miscellaneous plants and fruit in addition to those for Chrysanthemums.

— SEVERAL of the new FRENCH DECORATIVE SHOW PELARGONIUMS are highly deserving of note. Mrs. Patton (Lemoine) is a fine light variety, with large excellently formed

flowers, pure white, with very dark blotches. It is of the type of the very useful Kingston Beauty, but far superior, and can hardly fail to become popular. Madame Thibaut, of the same raiser, is very distinct, the flowers being semi-double, almost circular, the centre white, the remaining portion warm rosy pink. Both these have been certificated. Two nearly pure white varieties, Madame Charles Koenig and Lucy Lemoine, will be useful for affording cut flowers, especially for bouquets.

— THE value and usefulness of VERBENAS IN POTS for decorative purposes could scarcely be better exemplified than is the case at Mr. H. Cannell's nursery, Swanley, Kent, where there is a house about 100 feet in length entirely devoted to these plants. An immense number of varieties are represented, the majority bearing fine compact trusses of symmetrical flowers that vary in colour through numerous shades of blue, purple, pink, crimson, and scarlet, some also being striped with two distinct shades of colour.

— A CORRESPONDENT submits the following as amongst the BEST DOUBLE PYRETHRUMS in cultivation:—Gloire d'Italie, crimson; Mdle. Menier, pink; Captain Boyton, scarlet, incurved, fine; Cleopatra, blush white; J. N. Twerdy, carmine, fine; Carneum plenum, pink; Lady Derby, crimson, extra; Mont Blanc, white; Niveum plenum, white; Marquis of Bute, bright crimson; Minerva, deep rose; Solfaterre, white, yellowish centre; Captain Nares, crimson, fine form; Rose Perfection, grand alike in colour and form; Kreimhilda, pink; Rembrandt, crimson, very fine; Omar Pacha, crimson; Emile Lemoine, carmine, tipped yellow; Gustave Nertz, pink; Princess de Metternich, white; and Rubens, deep rose.

— A CORRESPONDENT writes as follows on DIPLADENIA BOLIVIENSIS at Cannizaro House, Wimbledon:—"Eighteen months ago Mr. Jordan planted a newly-struck cutting in a bed of good soil in one of the stoves, allowing it to run up the rafters and along the side of the house. This plant is now producing hundreds of white flowers, which are most valuable when cut, and continue fresh for several days in vases. This is an excellent mode of growing this useful plant, and is worthy of notice."

— IN a recent part of Messrs. Cassell's "European Ferns" is the following passage in reference to FERNS THAT ARE EATEN:—"The young shoots of a handsome Tree Fern, *Angiopteris evecta*, are eaten in the Society Islands; the large rhizome is in great part composed of a mucilaginous matter, from which, when dried, a kind of flour is prepared. In the same islands the young fronds of *Helminthostachys zeylanica* are prepared and eaten in the same way as Asparagus. The young fronds of *Alsophila lunulata*, the 'Balabala' of the Fiji Islands, are eaten in times of scarcity; and the soft scales covering the stipes of the fronds are used by the white settlers for stuffing pillows and cushions in preference to feathers, because they do not become so heated, and are thus a real luxury in a sultry tropical night. In New South Wales the thick rhizome of *Blechnum cartilagineum* is much eaten by the natives. It is first roasted, and then beaten so as to break away the woody fibre. It is said to taste like a waxy Potato."

— AN experienced cultivator sends us the following note relative to the COLOURING OF GRAPES:—Grapes about colouring should have a thorough watering with liquid manure. A night temperature of 70° will be suitable with free ventilation whenever the weather permits. With a heavy crop more time for ripening will be required, and the night temperature in such case should be kept at 60° to 65°, allowing a free extension of the laterals, or the probability is the Grapes will shank. Muscats commencing ripening must have a minimum temperature of 70°, gradually rising to a maximum of 90° or 95° with abundance of air, which

is essential to the berries assuming their fine amber colour and acquiring their peculiarly rich vinous flavour. Mulching must be kept moist so as to keep the roots near the surface, which is essential to the well-being both of the fruiting and young Vines.

— THE usefulness and beauty of *CESTRUM AURANTIACUM* for covering pillars in conservatories or similar cool houses is well indicated by the handsome specimen now flowering in the greenhouse at Kew. This plant is bearing its dense trusses of orange or yellow-coloured tubular blooms in great profusion, and as it is similar in habit to the well-known *Habrothamnus fascicularis* the effect produced by such a display of brightly coloured blooms is most agreeable. For the latter plant it would form an admirable companion.

— WE have received two volumes of Weale's Rudimentary Series, published by Messrs. Crosby Lockwood & Co., London, entitled respectively the *TREE PRUNER* and the *TREE PLANTER*. These books, though containing some good practical instruction, are remarkable for including under the above titles notes on "the Geranium," "Thyme," "Sage and Savory," "the Wallflower and Antirrhinum," "Thrift and London Pride," "Coleuses," "Cinerarias," and "Achimenes," among many other similar plants—a peculiar instance of "book making."

— WE have received parts 5 and 6 of MESSRS. LETTS & CO.'S *POPULAR ATLAS*, which contains six carefully executed maps of Switzerland, Russia, Australia, New Zealand, and the Western Hemisphere. The chief physical features of the countries are indicated, and the populations of the most important towns.

— A CORRESPONDENT informs us that he recently saw at South Pierremont, Darlington, a fruit of the Duke of Edinburgh Melon of the extraordinary weight of 16 lbs. 11 ozs. The plant that produced it was placed in the bed on the 25th of April last.

— IN September, 1881, THE MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY propose holding an unusually large exhibition of fruits, plants, and vegetables, to celebrate the fiftieth anniversary of the Society. We understand that every care will be taken [to render the Exhibition as complete and extensive as possible, and that fuller particulars of the prospective arrangements will shortly be announced.

— AT the Alexandra Palace on Friday and Saturday last Messrs. Cranston & Co., Hereford, had an EXHIBITION OF CUT ROSES, comprising in the two days nearly twelve thousand blooms, representing more than 160 varieties. The blooms were fresh and bright, and tastefully arranged in the central hall on a bank of moss, small Palms and similar plants being placed amongst them.

— A CORRESPONDENT, alluding to the accidental omission of the name of Mr. Scott from the names of the winners in ROSE CLASSES AT THE WIMBLEDON SHOW, states that this gentleman was awarded two first prizes, and his Roses excited the admiration of all visitors, possessing good substance, brilliancy of colour, and symmetry. He had a magnificent stand of Roses not for competition, the competitors in the cup class being limited to growers of not more than five hundred plants, while Mr. Scott has about a thousand. But this painstaking amateur Rose-grower, who is also Hon. Treasurer of the National Rose Society, cut all the blooms he could, and contributed greatly to the success of the Show.

— A CORRESPONDENT, "G. W.," wishes MUSHROOMS to grow in his meadows, and asks what process he is to pursue to attain the object desired. We shall be glad if those who have successfully established Mushrooms in meadows will communicate their experience on the subject.

— A CORRESPONDENT writes—"The Swedes appear to have found a new and effective way of making the COLORADO BEETLE known to all." He enclosed a portion of a match box of Swedish manufacture, upon which is delineated the above-named "beetle" busily engaged in destroying a leaf. The figure is fairly correct in colour and markings.

— AFTER a term of labour extending over thirty-three years MR. PETER GRIEVE, the accomplished gardener at Culford Hall, Bury St. Edmunds, has retired from his charge, and seeks the repose he so well merits. By his skill and devotion to his duties and his affable and genial deportment he enjoyed in a remarkable manner the confidence and esteem of his employer, the Rev. E. R. Benyon, whose service he only relinquishes in consequence of failing health. Mr. Grieve has done excellent work in the cause of horticulture. As a cultivator he occupied a high position, and he was the originator of the tricolor section of Zonal Pelargoniums of the Mrs. Pollock type, and was the writer of a prize essay on these plants that was widely distributed. But that Mr. Grieve did not by any means exclusively devote his attention to Pelargonium raising may be seen by a descriptive article on Culford Gardens in our issue of February 25th, 1875, wherein an excellent judge and cultivator, Mr. Douglas, speaks highly of the work in every department. We trust that Mr. Grieve's health will be speedily restored, and that he will long enjoy the esteem of his many friends. He will be succeeded in his charge by Mr. John Smith of Gunthorpe Hall, East Dereham, Norfolk, who enters on his duties about the middle of August.

— REFERRING to the CROPS NEAR CHIPPENHAM, "WILTSHIRE RECTOR" writes:—"Fruit, save bush fruit, is very poor in crop. As yet Potatoes are splendid, but I greatly fear that yesterday's (July 22nd) heavy storm and to-day's sultriness will bring on the disease."

— WE have received the PROCEEDINGS OF THE LIVERPOOL NATURALISTS' FIELD CLUB for the year 1879-80, which, in addition to particulars of the numerous excursions made by the Club, gives a most interesting lecture on "Floral Defences," by the President, the Rev. Henry H. Higgins, M.A., and an address by the same gentleman entitled "Biographical Sketches in Zoology from its Origin to its Union with Botany in the Science of Biology."

— IN celebration of the fiftieth anniversary of BELGIAN INDEPENDENCE a large HORTICULTURAL EXHIBITION was appropriately included in the great *fête* at Brussels. The Show was very fittingly solely national, not international, in its scope, and in consequence a detailed report of it would not possess special interest for our readers. That it was a great and a good Show none can doubt when such world-famed horticulturists as M. M. Van Houtte, Linden, Van Geert, Dallièrc, Jacob-Makoy, De Smet, Massange, Ghellinck de Walle, Vander Wouwer, and other celebrities put forth their strength; and that English visitors who attended the Exhibition and Congress were most hospitably received is what our frank and generous Belgian friends had by many previous instances of hearty welcome extended led them to expect. The time of year is not opportune for such exhibitors as those named to make a brilliant display, and Palms and fine-foliaged plants predominated at the Exhibition, which was opened by the King on the 21st inst.

— MESSRS. JAMES CARTER & Co. have sent us pods of TELEPHONE PEA. They are extremely large and fine, and similar to many we have seen in first-prize collections at various exhibitions this year. Experience has proved that this distinct Pea is one of the finest in cultivation, and is very valuable as a second early variety.

— IN reference to the class for SUBURBAN ROSES at the National Show, we have received letters complaining that a

prize was awarded in contravention of the schedule. We have referred one of the letters to one of the Honorary Secretaries of the National Rose Society, and are assured by him that the award in question has not escaped notice, and will be referred to the Committee at the next meeting. It was purely an oversight on the part of the Judges, who had overlooked the conditions when making their awards.

— THE EXHIBITION OF TABLE DECORATIONS at the Alexandra Palace is to be held on the 14th of August, and not the 7th, as announced last week, the entries closing on the latter date.

— IN a recent issue of *Nature* appear some interesting notes by Professor Baillon upon *PEPEROMIA ARIFOLIA*, an ornamental plant that is cultivated in the stoves of this country, the variety *argyreia* being an especial favourite. The leaves are peltate, and sometimes so much hollowed that they contain a quantity of water from sprinkling the plants or condensation. Small insects frequently fall into these little pools and are drowned. In referring to this Professor Baillon states that "Last year when the season was warm, and when the windows of the house were often open, the number of insects was very considerable, and these soaking in the water gradually decayed, and it was remarkable that during this there was not the least sign of any putrescent odour. Those who believe in the doctrine of insect-eating plants may perhaps in this be led to find an argument favourable to such a theory. They will add that the variety of colours so strikingly seen in these leaves constitutes the agent of attraction for the insects to come and be devoured."

ROYAL HORTICULTURAL SOCIETY.

JULY 27TH.

THE Society's meeting was on the occasion rendered doubly attractive and interesting by the exhibitions of Carnations and Picotees, and the British Bee-keepers' Association's Exhibition, which were held on the same day; but in addition to those attractions numerous plants and groups were submitted to the attention of the Committees. Not only was the Council-room occupied, but a large portion of the east quadrant was also filled with collections of plants notable either for their rarity, beauty, or fine healthy condition.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. Mr. Gilbert of Burghley Gardens, Stamford, sent a dish of Peas called Reading Nonesuch, which was recommended to be sent to Chiswick for trial. Mr. G. Weedon of Ealing, sent some fruit of a Cucumber called Best of All, which has a strong resemblance to Tender and True. Mr. Sidney Ford, The Gardens, Leonardslee, Horsham, sent a Melon called Bellamore Hybrid, an oval green fruit, the flesh of which was tender and most delicious. It was awarded a first-class certificate. Mr. W. Kimpton, The Gardens, Smeeth Paddock, near Ashford, Kent, sent samples of a seedling Potato, which was recommended to be sent to Chiswick for trial. Messrs. James Carter & Co. sent fruit of their Cucumber Model, which is a useful variety, but was not considered superior to others in cultivation. Mr. John Maher, gardener to C. Allhausen, Esq., Stoke Court, Slough, sent a variety of Pea called The Queen, and a box of fine Violette Hâtive Peaches. To the latter a letter of thanks was awarded.

Mr. J. Wilson, Home Cottage, Enfield Highway, sent a seedling Currant raised from Raby Castle, to which it bears so close a resemblance that no difference could be distinguished between them. Mr. Pearson, Water Lane, Brixton, again exhibited his seedling Strawberry, but the flavour was so inferior that the Committee could not make any award to it. Messrs. Hooper & Co., Covent Garden, sent a Melon called Sirdar, which was not of sufficient merit.

Messrs. C. Lee & Son, Hammersmith, sent a basket of Henson's Seedling Gooseberry. This variety received a first-class certificate a few years ago, and still maintains the high opinion then formed of it. A letter of thanks was awarded. Mr. E. P. Dixon of Hull sent fruit of a new Raspberry derived from the Northumberland Fillbasket. It is a large handsome fruit, but not superior in flavour to other varieties in cultivation.

Messrs. Rivers & Son of Sawbridgeworth sent nine varieties of Cherries grown on pot trees in an orchard house; the finest of all was Early Rivers, a variety certificated by the Committee some years ago. Grosse Guigne Noire Luisante was also very fine. A letter of thanks was awarded for the collection. Messrs. Rivers also exhibited eighteen fruit trees in pots, which were so much admired for the excellence of their cultivation that a silver gilt Knightian medal was awarded. Mr. Stephen Castle, The Vineyard, King's Lynn, sent a collection of Tomatoes, to which a cultural commendation was awarded. Mr. Sidney Ford sent a collection of Potatoes consisting of forty-three varieties, to which a bronze medal was awarded.

FLORAL COMMITTEE.—Dr. Denny in the chair. The following were the most notable exhibits in the Council-room. Messrs. John Laing and Co., Forest Hill, sent a fine collection of Hollyhock blooms, including some remarkably handsome varieties; the blooms were of great size, full, and of good form. Mr. J. Chambers, Westlake Nursery, Isleworth, sent a collection of Lobelias and Ferns, young specimens of *Asplenium viviparum* being particularly attractive with their finely divided fronds bearing diminutive plants. Mr. G. Weedon, Ealing, staged a basket of a bedding Lobelia named Gem of the Season, dwarf and free, the colour of the flowers being a very bright blue. Mr. R. Dean, Ranelagh Road, Ealing, exhibited flowers of a double Stock named Mauve Beauty, very profusely flowered; also specimens of the double Mayweed, *Matricaria inodora* fl.-pl., and samples of two seedling Potatoes, The Alderman and Lord Mayor, both crosses obtained between Extra Early Vermont and Early Market. Messrs. Veitch, Chelsea, sent several new and beautiful plants, including a very attractive dwarf Tuberous Begonia with pendulous rich scarlet flowers; a white-flowered variety named Mrs. Sheppard, of considerable beauty; a variegated form of *Lilium longiflorum*; a plant each of *Oncidium dasyle*; and a variety named aureum with bright yellow labellums. Messrs. William Paul & Son, Waltham Cross, sent a box of seedling Roses. Messrs. J. Carter & Co., High Holborn, exhibited plants of *Tropæolum Chameleon*, a dwarf compact variety with neat flowers marked with crimson and yellow, and several good Balsams. Mr. J. Smith, Tollington Nursery, Hornsey Road, sent two Fuchsias named President and Magnum Bonum, both having large flowers with purple corollas and scarlet calyxes. Messrs. Standish & Co., Royal Nursery, Ascot, staged specimens of a Phlox named Standish's Perfection, a fine variety with large white flowers in compact trusses. Mr. B. S. Williams sent several new plants, *Cattleya Eldorado virginialis* being particularly attractive. Mr. Stephen Brown, Weston-super-Mare, sent a collection of Coleuses; and cut flowers of Pentstemons were exhibited from the Society's garden at Chiswick. Messrs. T. Rivers & Son, Sawbridgeworth, sent about twenty fruit trees in pots, comprising Pears, Cherries, and Apples. One tree of Bigarreau Napoleon was remarkable for the fine crop it was bearing. A vote of thanks was accorded to W. A. Wallington, Esq., Trowbridge, for cut blooms of Carnations.

In the east quadrant, however, the principal collections of plants were staged, and by far the largest and most remarkable of all was that from Captain Patton of Abbey Road, which is referred to in another column under the report of the Royal Horticultural Society's Evening Fête. We were glad to notice that it had been partly re-arranged so as to avoid that crowded appearance which was noticeable previously. The plants composing the group having being noted in the report referred to, it is needless to repeat them here, but the merit of the collection was justly recognised by the award of a large gold medal. We understand that the group will remain on view until the Popular Show on August 2nd.

Messrs. James Carter & Co., High Holborn, exhibited a large collection of their Challenge Prize Balsams, which well indicated the excellence of the strain they possess. The majority of the plants were in 48-size pots, were a foot to 18 inches in height, and bearing a profusion of large blooms of good form and substance. The lilac, mauve, and purple shades were particularly well represented; white, flesh, pink, and scarlet were also remarkably fine. A silver Banksian medal was awarded. Messrs. Osborn & Son, Fulham, sent a neat collection of fine-foliated plants in fresh healthy condition. The central plant was a vigorous specimen of *Acalypha musaica*, the foliage large and well coloured. In addition to such well-known elegant Palms as *Areca Baueri*, *Kentia australis*, *K. Wendlandia*, *K. Canterburyana*, and *Cocos Weddelliana*, small specimens of the dwarf and pretty *Pandanus ornatus*, *Aralia Veitchii*, and *A. filicifolia* were shown.

Messrs. Charles Lee & Son, Hammersmith, were awarded a silver Flora medal for a large and beautiful collection of ornamental shrubs and Conifers in pots. The specimens staged were mostly small, but well showed the distinctive habit and colouring of the different species and varieties. Some of the most noteworthy forms exhibited were the following:—*Platanus californica*, a very distinct species with enormous leaves more than a foot in diameter; *Populus canadensis aurea*, an elegant Poplar with neat golden-yellow leaves; *Ulmus campestris variegata*, a beautifully variegated Elm, the markings on the leaves somewhat resembling those in *Ficus Parcelli*; *Castanea vesca alba marginata*, an elegant variety of the English Chestnut with narrow leaves edged with an irregular band of white; *Sambucus racemosa*, remarkable for its large corymbs of small scarlet berries; *Quercus atro-purpurea*, a form with very dark purple flowers; *Quercus Cerris elegantissima*, a variety of the Turkey Oak with neatly variegated foliage; *Acer campestris variegata*, a charming little Maple with small leaves freckled with white; *Quercus filicifolia*, a peculiar form with deeply divided leaves, the segments being irregularly linear; *Æsculus laciniata* was also remarkable for the narrow dark green peculiarly cut segments of the leaves; *Quercus purpurascens* had rich purple foliage, and many other beautiful forms were represented.

Mr. H. Cannell, Swanley, Kent, exhibited a beautiful collection of single Petunias, fine in form, and particularly rich in colour. The blooms, as seen in contrast with a carpeting of Fern fronds, appeared remarkably well. The collection was flanked by four plants of *Achimenes longiflora major*, with uncommonly large flowers; also a collection of African Marigolds. This little group was generally

admired by the visitors. Mr. W. Rumsey, Waltham Cross, contributed seven boxes of neat and fresh-cut Roses, comprising a number of excellent varieties in very good condition. Some of the best were Leopold Premier (very neat and fresh), Madame Victor Verdier, John Stuart Mi'l Dr. Andry, La Rosière, and an excellent dozen of Alfred Colomb—bright, of good form and substance. A bronze Banksian medal was awarded. Messrs. James Veitch & Sons, Chelsea, exhibited eighty blooms of border Carnations and Picotees grown at King's Road, Chelsea, comprising a large number of excellent varieties. Among the Carnations the most noticeable were Lord Chelmsford, R.F.; Sulphur King, yellow self; Crimson Pet, a rich crimson self; Purple Prince, fine purple self; and Mrs. Teigner, fine pink self. Of the Picotees Mrs. Rayner, rose, medium edge; and Lady Armstrong, a heavy red-edged variety with a yellow ground.

First-class certificates were awarded for the following plants:—

Lygodium palmatum (G. F. Wilson, Esq., F.R.S.).—A beautiful climbing Fern, which was stated to have been grown upon a rockery and unprotected for several winters. This is one of the most elegant and free-growing Lygodiums in cultivation, and proves of considerable value for training up pillars in greenhouses or conservatories.

Rose Duchess of Connaught (C. Noble, Bagshot).—A Hybrid Perpetual of rich crimson hue, neat form, and possessing a particularly powerful and agreeable fragrance.

Rose Mrs. Jowitt (Cranston & Co.).—A handsome Hybrid Perpetual, of symmetrical form, great substance, and a glowing rosy crimson colour. Very beautiful.

Macrostylis metallica (Veitch).—An attractive dwarf terrestrial Orchid, with neat foliage of a shining metallic deep brown colour, with a crenated margin. Very pretty for culture in pans on stages in stoves or Orchid houses.

Oleobachia palustris (Williams).—A graceful table plant with digitate leaves, the divisions being narrow and rich shining green in colour. The habit of the plant is compact and dwarf.

Iris Kempteri, vars. *Crimson King* and *Magnificence* (Veitch).—Both these varieties were of exceptional size and rich in colour, the former being particularly beautiful, the shade of crimson being intensely bright and clear.

SCIENTIFIC COMMITTEE.—Mr. W. G. Smith exhibited a specimen of *Pyrethrum* more or less fasciated and bearing a proliferous head—the so-called “hen and chickens,” not uncommon in the Daisy. Mr. Roberts, Penzance, forwarded specimens of the following rare British plants:—*Chara fragifera* (living), *Allium Schönoprasum* var. *sibiricum*, *Orobancha rubra*, and *Erica vagans* (dried) from the Lizard, Cornwall. The Rev. G. Henslow exhibited a foliaceous and proliferous *Trifolium repens*, and called attention to the fact that while the sepal-teeth grow out into petiolate leaves, stipule-like processes appeared at the top of the calyx-tube between the petioles, seemingly proving that the tube is really receptacular and not of calycine origin. Mr. Fletcher of Ottershaw forwarded male cones of *Araucaria imbricata*.

Mr. Cheshire being subsequently about to lecture on bees, the Rev. G. Henslow took the opportunity to speak principally on the fertilisation of flowers by them and other insects.

A basket of *Tropæolums* furnished illustration of strong “proterandry”—i.e., the stamens, maturing first, rise up in front of the orifice to the spur and then retire on shedding the pollen. Subsequently the stigma matures and takes up the same position; hence such a flower is fertilised by pollen brought from a younger one. Fuchsias illustrated the false generalisation that, whether a flower be pendulous or erect, the stigma will be below the anthers, so that the pollen may fall upon it. Though such an arrangement is in the *Fuchsia* the flower is proterandrous, and therefore is not adapted to self-fertilisation. Moreover, when flowers are habitually self-fertilised the anthers are placed in close contact with the stigmas, as is the case with the “cleistogamous” buds of Violets. A group of *Pentstemons* furnished the case of a flower fertilised by bees, but which by means of the fifth (abortive) stamen standing over the nectary, afforded an obstruction to all insects whose proboscis could not reach to the bottom of the tube, and so would not be of any assistance in pollinating the flower. The structure of *Abutilon*, *Malva sylvestris*, and *Salvia* was described as being especially adapted to insects in securing cross-fertilisation, while cleistogamous Violets and *Malva rotundifolia*, &c., were self-fertilising.

The lecturer observed that all the varied beauty of flowers in nature was solely due to their being adapted to insects, whilst self-fertilising flowers were inconspicuous and unattractive. A plant of *Lygodium palmatum*, exhibited by Mr. Wilson, illustrated the peculiarities of climbing stems or “twiners,” and the lecturer suggested that as the property of bowing in a circular manner was not confined to climbers, for the apex of a Pine does the same, that it is probably a general phenomenon of plant growth, but specially utilised by plants with weak stems as a means of support.

The following plants were certificated at Chiswick on July 20th.

BEGONIAS.

Dr. Denny.—Strong vigorous habit, very free-flowering. Flowers of medium size, well thrown above the foliage, very pale scarlet, approaching almost to a salmon.

Dr. Hogg.—Very strong growth. Stems pale green. Flowers well displayed, of a very bright scarlet, shaded towards centre with a pale hue. Very free-flowering and good.

Lucy Violet.—Vigorous habit, very free-flowering. Flowers of medium size, clear rosy pink, shaded towards the centre of the flower.

Anna Ria.—Strong vigorous growth, very free-flowering. Flowers of medium size, pale scarlet. Good.

Lizzie Smith.—Free vigorous growth. Flowers dark scarlet, with distinct magenta shade; round, medium size.

Henry Webb.—Strong vigorous habit, free-flowering. Flowers large, of good form, clear scarlet. Very good.

Annie Wilkie.—Strong habit. Stems pale green. Flowers large, pale scarlet, well thrown up. Very good.

Nellie Barron.—Very close compact habit, very free-flowering. Flowers erect, of a beautiful dark scarlet. Very fine.

Rosea Grandiflora.—Tall erect habit. Flowers very large, of good substance, beautiful rosy pink.

The certificates which had been previously awarded to the varieties Nellie May and A. Hemsley were on this occasion confirmed.

All the above varieties were raised in the Royal Horticultural Society's Gardens.

PELARGONIUMS.

Gloire d'Orleans (Lemoine).—Of dwarf close habit, very free-flowering, medium, erect-growing truss, beautiful magenta scarlet. The brightest coloured in the Ivy-leaved section.

Lucie Lemoine (Lemoine).—Show-Decorative. Very dwarf close growth, very free-flowering. Flowers pure white, slightly pencilled at bottom of petals. The best white.

Mrs. Potten (Lemoine).—Show-Decorative. Free habit, free-flowering, white, slightly shaded; distinct purple blotch on upper petal. Very distinct and showy.

Madame Thibaut (Lemoine).—Show-Decorative. Free vigorous growth, very free-flowering. Large compact truss, white suffused with magenta; distinct, broad, and irregular rosy margin round petals. Very fine and showy.

Mont Blanc (Lemoine).—Ivy-leaved, white shaded pink, very free-flowering, large truss. Very fine.

Similar awards were also made to the two following plants on the same occasion:—

Gomphrena globosa nana compacta (Benary).—A very fine dwarf free-flowering form of the Globe Amaranth, from 9 to 12 inches high.

Oleander Professeur Duchatre (Huber).—Flowers purplish wine colour, beautiful shade, free-flowering and very showy. The darkest-coloured of any.

STRAWBERRY PAULINE.

THE enclosed letter from Mr. Ruffett of Panshanger, a fruit grower and exhibitor well known to your readers as no mean authority, confirms your observations and our experience as to the value of this now well tested Strawberry. Mr. Turner's remarks on page 66 savour too much of *cathedrâ* utterances—that, because not good at or coming from Slough, a Strawberry must necessarily be worthless. We remember showing Pauline in 1877 at the Crystal Palace Rose Show, and Mr. Turner admiring it; and we sent him plants in August, 1877, for trial. His experience consequently, is not so long as ours.—PAUL & SON, Cheshunt.

“Pauline Strawberry is by far the most useful early Strawberry I have ever grown, quite ten days earlier than Keens' Seedling with exactly the same treatment. The plant is of good constitution and a great cropper, only second-rate in quality, but its extreme earliness makes it invaluable.—W. RUFFETT.”

DRAINAGE OF LAND.

THE wet and sunless summer and autumn of last year will have shown those having ill-drained gardens how important it is to have the means of carrying off superfluous water. Whether it is for vegetables, trees on walls, plants under glass or cultivated in pots, a thorough drainage is the first thing to be secured, and of the greatest importance. One might prepare a most suitable soil for a plant in a pot, but if the drainage is carelessly placed in, and the soil is soon washed into it, the plant will quickly become unhealthy. If it be so in the case of plants in pots, why should it not be likewise applicable in the open ground? In proof of the above remark, I may mention having read of the general failure of Peaches outside this year; but in some cases it was remarked one cultivator had a moderate crop of fruit, while his neighbour had not one. How is this? I fancy someone saying, “One was well sheltered and the other very much exposed.” This would be a reasonable reply; but the answer I would give to such a question would be, “One border was well drained and the other was not.” I remember reading some time ago a paper written by one of our leading agriculturists, and in it he said he did not consider drainage necessary providing the land was deeply cultivated, but I would advise good drainage and deep cultivation combined. This, with proper after treatment, will be the means of making an unsatisfactory garden productive, and one that is late comparatively early. Bringing forward this subject early in the season will enable those—seeing the great importance of good drainage to their soil—to lay down their plan to be carried

out next winter. I will consider the subject in a future issue.—
ROBERT D. LONG.

GERANIUM PRATENSE FLORE-PLENO.

THE ordinary double variety of this old British species is well known and is attractive as a border plant, but the continental form

represented in fig. 20 far surpasses it, and is unquestionably one of the most effective border plants in cultivation. The flowers are perfectly double, large, and well formed, and are borne in great profusion. The plant is more dwarf than the ordinary double variety, growing from 18 inches to 2 feet high according to the nature of the soil, and forming a compact bush covered with hundreds of bluish-purple flowers. The spray figured was gathered



Fig. 20.—GERANIUM PRATENSE FLORE-PLENO.

from a plant in Mr. Laxton's Experimental Garden, where its superiority over the familiar type was very apparent, for both were growing together. This is a border plant of the first order of merit, and no one seeing a well-grown specimen can fail to admire it, and there are few growers of hardy flowers who would not desire to possess it. The lower leaves are much larger than those produced on the stems, and one of them is shown in outline behind the spray. The plant continues expanding its flowers

over a considerable period, and thus remains a long time in beauty.

THE WEATHER AND THE POTATO CROP IN IRELAND.—I see on page 70 of the Journal that the Potato disease has appeared in several parts of England. I have much pleasure in stating that with us, or in this locality generally, so far there has not been a trace of it. I have recently been through much of Munster,

and that district is also exempt. Correspondents from other parts of Ireland, except in one or two isolated localities, confirm these facts. This means millions—much more than the most beneficial legislation—to the humbler classes in Ireland. We grow Ashleaf Kidney, Early Rose, Flourball, and Flounders for early crop; for late—Champions, Scotch Downs, &c. All are in admirable condition, especially Champions, 4 feet high with fine upright haulm. The weather is favourable.—W. J. M., *Clonmel*.

A DAY IN BEDFORDSHIRE.—No. 1.

JUST before the occurrence of the heavy storms that were so general about the middle of the present month I found myself journeying from London to Southill station *via* Hitchin, my destination being Old Warden, a picturesque village four miles from Biggleswade. The bulk of the hay crops between London and Hitchin were fortunately secured, but those in the valley of the Ouse were only just cut, and many tons of the produce have been unhappily washed away. The grain crops of the district traversed between Hitchin and Bedford were full, bold, and upstanding—a bountiful prospect then, but now the crops are flattened to the earth. Strawberries in the gardens were most abundant, and much fruit was gathered before the storms occurred, but a vast quantity was destroyed by the heavy and continued downpour and rotted on the ground. Roses and flowers, generally so fresh and bright on the 10th inst., were a week afterwards dashed in pieces, and a flourishing district was despoiled of its beauty, causing disappointment and loss to gardeners and farmers. This, it is feared, is but an example of the effects of the storm that was almost general, and which will be seriously felt for a long time by those engaged in the cultivation of the soil; but I must refer to

OLD WARDEN.

This, the ancestral seat of the late Lord Ongley, passed by purchase during the lifetime of the last lord of that title into the possession of Joseph Shuttleworth, Esq., whose Lincolnshire mansion—Hartsholme Hall—was illustrated and the gardens described in the *Journal* of March 9th, 1876.

The time is not opportune for telling the story of the life of the squire of Old Warden, but whenever it is written it will be one of the many instances that could be cited, that a life of well-applied labour founded on sound judgment brings a reward to those who see in advance a coming want and promptly determine and unceasingly labour to meet it. This is what Mr. Shuttleworth and his colleague Mr. Clayton have done. These once manual workers, seeing further than their fellow men, were the pioneers of the steam machinery revolution as applied to agriculture, and they now admittedly stand at the head of that industry, which has proved of incalculable benefit to the whole civilised world. Those who have achieved results so great deserve a fitting reward, and Mr. Shuttleworth merits, amongst other marks of distinction, the position he adorns as a magistrate of two counties, a director of the Great Northern railway, and a member of the Council of the Royal Agricultural Society of England, besides being High Sheriff elect of the county of Bedford.

So much in brief relative to the owner of Old Warden, and now let us glance at the estate. It consists of about three thousand acres of excellent land, principally arable, meadow, and market gardens, with a moderate extent of woods, a richly timbered and beautifully undulated park, a noble mansion, fine pleasure grounds, a small garden, and model village. The garden will probably be larger some day, a commencement having been made by the erection of an admirable range of glass by Messrs. Foster and Pearson. The alterations and improvements that have been in progress during the past four or five years have been most extensive and costly, and instead of being surprised that a garden commensurate in size with the mansion and estate has not yet been made, the real wonder is that so much has been effected. The old mansion was taken down, and a fine structure in the Tudor style has been erected on the site, everything having been done that skill could accomplish and science suggest to render it complete. The striking feature of the building is the castellated clock tower, the clock being a reduced counterpart of that in the tower of the Houses of Parliament at Westminster, the chimes of both being identical. This massive building in Bath stone has a fine effect as viewed amongst and rising above the grand old Elms, Oaks, Limes, and Beeches in the park. The stables adjacent are appropriately massive and ornamental. This is not the place to describe them, but it may be said that they are not surpassed if equalled in the Queen's dominions. All the farmsteads on the estate have been rebuilt in the most approved manner. Cottages in the village have been renovated or rebuilt, and furnished with all necessary appliances for making them healthy and comfortable homes. The once

rough rising banks from the road to the cottage gardens have been turfed, two rows of bricks on edge forming the base above the road level. Evergreen and flowering shrubs have been planted in prominent positions with Ivy and creepers for the dwellings; the whole being kept in order, the Ivy cut once a year, the green Holly hedges with fine standards of the Golden Queen at intervals trimmed at the proper season, and the turf banks kept like a lawn by Mr. Allis, the gardener; indeed the village appears like a portion of the pleasure grounds. The great amount of labour necessitated on the estate has been of great advantage to the village and district, especially during the last two severe winters, when work was always found for willing workers.

We pass to the pleasure grounds. These are wholly on one side of the house, extending in a north-easterly direction to what is the great feature of the grounds—the Swiss garden. Some grand old Junipers and Cypresses tower aloft from the lawns, and the walks pass under a thick canopy of foliage of the closely planted deciduous trees, which have an undergrowth of Laurels. There are avenues of Yews and Spruce with cool grassy glades, and here and there specimen trees and Conifers in commanding positions. Only one of these need be noticed, and that only about 9 feet high, but it is *Abies pygmaea*; and a specimen of that diminutive Spruce, a dense cone of the height named, with a base 8 feet in diameter, is not often seen. During several years of absence of Lord Ongley the grounds were neglected, and much labour will be required to put all the trees, shrubs, &c., in order; but a commencement has been made, and all will be accomplished in due time.

The Swiss garden has been “brought round,” and a more picturesque and thoroughly enjoyable enclosure than this is scarcely to be imagined. It may be described as the life work of Lord Ongley—the “old Lord” as he is termed, and unquestionably a vast amount of labour and great taste have been employed in its formation. It is an enclosure of eight acres, but so planted and arranged as to appear considerably larger. It has been thoroughly renovated and improved, Mr. Allis having in this work had the valuable guidance of Mr. Milner, the well-known landscape gardener. The enclosure is sheltered by trees on three sides, being partly open to the south, and is surrounded by a gravel walk, from which most picturesque views are had of the ground below; for the enclosure may be generally described as a hollow, but broken by bold mounds and groups of trees on raised stations—indeed it is a series of deep grassy dells, and elevations more or less abrupt. Here and there are fine specimen trees—Cedars of Lebanon, lofty Junipers, luxuriant and graceful Hemlock Spruces, and fine examples of *Araucarias*, two of which, the male and female forms, have produced many cones. There is a miniature grove and Spruce avenue, with a narrow tortuous stream enclosing small islands and forming little cascades; ornamental bridges cross the stream, and large wired arches are thrown across the glades for Vines and Roses, &c. There are Rose trees—real trees—by the sides of the walks laden with a wealth of bloom, old varieties whose names are forgotten, but most beautiful and sweet. In a prominent position is a Swiss cottage—not a mere apology for a structure of this name, but a beautifully finished edifice that was once the home of the keeper of the garden, but not now permanently occupied. This quaintly attractive cottage and its well-planned site is exceedingly ornamental. Almost in the centre of the grounds, and hidden from view but for the glimpse of a dome of glass which appears as if growing out of the ground and protruding through a mass of vegetation, is a glass structure with a semicircular roof. It appears to have been formed to shelter the old *Wistarias* that cover the roof. This almost buried structure is entered by long passages, into which light is admitted here and there through stained glass windows. These arched corridors were originally of plain brickwork, but they have been transformed into stalactite caverns by Mr. Pulham of Broxbourne, who with great skill has imparted to the interior a singularly romantic appearance. In the walls pockets have been formed for Ferns and other suitable plants, which Mr. Allis is establishing as rapidly as possible. This rugged, grotesque, and almost subterranean fernery comes as a surprise from the great expanse of smooth and admirably kept lawn of the garden, and once fairly out of the passage the stranger would be a little puzzled to find the entrance through the skilfully planted shrubs. The prevailing greenery of the garden with its Ivy-clad banks has been relieved and the effect brightened by Golden Yews, Golden *Acacias*, variegated Hollies, and other choice flowering and deciduous shrubs which have been freely yet tastefully planted by the present owner. Statuary, appropriately ancient, is also placed in different parts of the grounds. It is a beautiful and extremely diversified garden, and is worthily cherished both by its owner and gardener. It contains, however, few flowers, Mr. Allis with good taste almost limiting

these to Foxgloves and other hardy flowers that are allowed to establish themselves among the shrubs in pleasing informality.

Only brief reference can be made to the kitchen garden, in which a choice selection of fruit trees has been planted, and the range of glass above referred to erected. The Vines are very strong, short-jointed, and full of promise. Laterals are allowed to grow down to the ground, and consequently the rods have swelled freely to the base. The few bunches which have been safely permitted are very fine. Foster's Seedling and Buckland Sweetwater have exceptionally large berries; bunches of Gros Guillaume will exceed 6 lbs. in weight, and Black Hamburgs and Muscats are also excellent. A well-drained border with plenty of water and mulchings of rich manure to the roots, and laterals thinly trained 18 inches from the glass, are what Mr. Allis rightly considers cardinal points in Grape culture. The Peach houses contain healthy trees of the best varieties, some—including Plums, Pears, and Cherries—being in pots for present bearing. Figs are planted for covering the back walls of the Peach houses, those of the vineries being covered with Tomatoes, which are very strong, and producing fine fruit of Carters' Green Gage, the favourite variety at Old Warden.

Outside were full crops of vegetables. Strawberries were abundant. For size with high quality Dr. Hogg bears the palm; Sir Joseph Paxton and Omar Pacha were producing an abundance of very large fruit; fine also was Bradley's Amateur, which by its firmness is an excellent traveller. As Onion-sowing time is approaching, it may be useful to mention that the best in the beds sown last August was the old silver-skinned variety, that is usually sown in the spring for pickling purposes. The bulbs far excelled those of Silver Queen, and indeed all other varieties. When sowing winter Onions other cultivators may well try a few rows of the variety referred to. Another simple matter may be mentioned, as simplicities are sometimes overlooked by writers on gardening. A scarce article at Old Warden was Mint, and, curiously, when it was wanted Mr. Allis could not find a vendor. He found, however, a few sprays, inserted them like Verbena cuttings in pots of sandy soil in heat; in a few days they rooted, were topped, and inserted again, until he soon had large flat pans full—Mint in abundance, and to spare. Those who have large supplies of forced Mint to provide in winter and spring should try this plan of providing it; it is possible it will surpass all others. Insert the cuttings an inch apart in spring, when rooted plunge the pans in a convenient position in the garden, and a fine vigorous Mint store is provided ready to hand for placing in heat as required.

Just a word on the gardener's garden, because it contains remarkable bushes of the distinct and beautifully striped old Rose Rosa Mundi, which is rarely seen now in such numbers and condition, there being hundreds of fine flowers in colours resembling clear rose flake Carnation. Behind this pretty cottage is what is termed the Warren, some acres of remarkably straight and tall Scotch Firs and Larches, with long avenues of Spruce, and an undergrowth of Ferns—a cool and delightful retreat.

I had almost omitted to note that the Warden Pear is reputed to have been raised by the Monks of Warden Abbey, a few relics of which exist; it is a baking Pear, and supplied the contents of the celebrated Warden pies. Under this name baked Pears from Warden were hawked in Bedford not many years ago under the name of "Wardens all hot." It may be noted, too, that this Pear is the origin of the line "A dainty bit of a Warden pie," in the well-known song of the "Friar of Orders Grey."

This fine old estate is ably managed by Mr. Allis, who was formerly gardener at Hartsholme, but is much more than gardener at Old Warden.—J. WRIGHT.

CHAPTERS ON INSECTS FOR GARDENERS.—No. 8.

NEW SERIES.

CONTINUING our remarks from page 27 on the Hymenopterous order, or "order of bees," we arrive at the Anthophila. In their characteristics these bees resemble the preceding sections of Aculeata, but we at once recognise their distinctness as a group by the peculiar structure of the hind legs. The tarsus, or what we might designate by the familiar name of the "foot" of the bee, has where it joins the tibia a joint, which is enlarged and flattened into a kind of plate. In the wasps and allied genera this joint is merely rounded. Bees are evidently provided with this flattened joint—which is sometimes thickly fringed with hairs, making it then a sort of basket—to assist them in gathering and conveying pollen. But the structure occurs in some bees that do not seek for pollen. To the apiarian, if not to the ordinary naturalist, the idea of social life naturally suggests itself when bees are mentioned; it is therefore surprising to some to be told that of all our British wild bees none are really social except the humble bees. Many bees

have been supposed to live in communities when they are simply gregarious—that is, instinct leads them by scores, or perhaps by hundreds, to resort to the same wall or the same sandy bank; but each makes its nest apart from the rest, and they never unite for mutual defence or help. The first family is that of the Andrenidæ, with a short and flat tongue, and all the species are solitary, consisting of perfect males and females; being also neither beneficial nor injurious to gardening pursuits, and in their habits they remind us of the proceedings of some of the solitary wasps. The genus Colletes offers a good example of these bees. The average length in this genus is about a quarter of an inch; the thorax is downy, and the abdomen ringed with greyish hairs. The mother bee makes a burrow or tunnel in a suitable spot, frequently a sandbank, occasionally a soft wall; and at the bottom of this, which may be 9 or 10 inches deep, a cell is formed, in which an egg is placed, with a supply of honey and pollen. Another cell is added, then more, until perhaps a dozen have been completed, and the satisfied parent departs, having finished her life work. The partitions of the cells and the sides are plastered over with a gummy substance that is presumed to be secreted by the bee.

But the question may be put. Each young bee as it emerges must travel along the cells of its companions except the one nearest the top, do they all emerge simultaneously? Now, it is found that the busy mother takes some time over her operations, and therefore the first-laid eggs would be likely to be the forwardmost, yet these are farthest from the place of exit. It is believed that this difficulty is met thus: Each bee deposits eggs that produce male and females, and the latter require the longest time to reach maturity. Female eggs are therefore laid in the first-made cells, and a batch of male eggs to finish; the bees developed from these are soonest out, and leave their cells empty for their female companions to pass through. The same plan has been noticed in the genus Osmia, but how the sexes manage the emergence amongst themselves is doubtful.

In Sphecodes we have singular little bees, rather wasp-like, with red and black bodies. Their burrows are usually in dry banks, and they are often seen mixing with colonies of Halictus. These are also small and glossy like those in the genus Sphecodes, but they are downy or hairy. When these discover a suitable hole in a bank, instead of forming a long burrow they will form several short ones of two or three cells each opening into this common exit. Andrena is a genus that shows some variety of size and appearance. Some of these insects are about the dimensions of the hive bee, others are much smaller; they are all more hairy than that species. Their tunnels are of rude construction. A. hirtipes is a species notable for the very large size of the pollen brushes that adorn the tarsus of the female; the head is grey and black, the thorax black and yellow, and the abdomen black and white. The second section of the true bees contains more species than the preceding, and in this, the Apidæ, we observe that the tongue is long, and doubled under the mouth when the insect is at rest. The size varies from that of the large Bombi to that of the smaller Nomadæ (cuckoo bees), and in habit some are social, some solitary, and some parasitic. Many are visitors to our flower gardens and shrubberies, and some species have been placed on the list of "garden foes" because they form their nests in branches or in stakes. But the mischief they do in that way is only trifling, nor do they often attack wood that is entirely sound or healthy. Something may be said, too, concerning other species that are known as the "Leaf-cutters," and which, by the operation of their keen jaws, tend to disfigure various plants and shrubs. To commence with the cuckoo bees: there are five genera of these, containing probably about fifty species, and they have taken their appellation from a habit that brings them into an association with the bird whose peculiar cry suggested the popular name. Through their structure these bees are unfitted for the digging or boring operations performed by others, and they are not as a rule collectors of pollen; Nature has therefore taught them to provide for their young by artifice. Diligently and cautiously do they pursue the tracks of the Andrenidæ and Apidæ, and having discovered a burrow prepared and stored with food the parasitic or cuckoo bee enters, and deposits its egg or eggs. These produce larvæ which devour whatever honey and pollen is obtainable, and perhaps they eat also the rightful possessor of the cell. Mr. Smith, however, an observer whose opinions and statements have ever commanded respect, thinks that in numerous instances the bee which had made and stored the cell or cells in the burrow, finding that an interloper has been there, withdraws without depositing all its eggs, or possibly any; and the cuckoo bee, having placed its eggs in the stolen burrow, closes up the opening with clay. Most of these cuckoo bees, being of the family Cuculinæ, are hairless and wasp-like, banded with black, brown, and yellow.

The last family of the Aculeata and of the true bees is called "Sociales," including the hive and humble bees. The humble or bumble bees, the dumbledores of some counties, are easily recognisable as a group, but the individual species are difficult to make out, owing to curious variations in size and colour. The hum of these Bombs is to most persons an agreeable sound, nor do they readily sting unless badly treated, but they can inflict a very painful wound, having a potent bag of poison. Here, by their habits, we are reminded of the economy of wasps, for humble bees consist of males, females, and workers; the nests are also, as with the wasps, started by a few females that have hibernated. There are various wild bees that render assistance towards the fertilisation of flowers by carrying pollen from plant to plant, but the Bombs claim pre-eminence in this respect, though these bees are guilty, in some circumstances, of biting a hole in the corolla of a flower. It is the habit of some of the humble bees to hide their nest in the ground, but some make it in a slight hollow of the earth, and cover it with moss or leaves. The grubs are tended and fed by the workers, and a nest contains two hundred or even three hundred cells, but no stock of honey. We may note that it is certain many of the larvæ or grubs of bees that are placed under ground are devoured by earwigs and beetles.—C.

A WEEK OUT.—No. 3.

ROYAL BOTANIC SOCIETY'S GARDENS.

ON June the 10th I visited the above Gardens, and the following plants chiefly attracted my attention. In the glass structures I noticed *Hydrangea hortensis* in 6 or 7-inch pots, the plants not being more than a foot high and bearing heads fully a foot in diameter; and *Petunias* with large double flowers, showing their great decorative value. *Araucaria Cunninghamii* was of stately proportions, its Yew-like foliage contrasting admirably with a magnificent specimen of *Seaforthia elegans*. There were a very fine *Chamaerops humilis* with noble stem and fine head of fronds; *Phoenix dactylifera* with the stem covered with *Ficus repens*. *Araucaria Cookii* was of pendant spreading habit, and *Corypha australis* also fine. In warmer quarters were *Cereus grandiflorus* with several flower buds that would expand at night, and the good old *Medinilla magnifica* in flower, and that fine Palm *Ceroxylon andicola*.

The house devoted to aquatic plants contained fine examples of *Nelumbium speciosum*, *Nymphæas*, and *Limncharis Humboldti*; and on benches were the pretty table plant *Reedia glaucescens* and *Acalypha musaica*, which is useful for a similar purpose, requiring stove treatment. *Rhododendrons* were exhibited in a large tent by Mr. Anthony Waterer and made a very interesting display, the best old and new varieties being represented. This has not been a good season for bloom, but the following were very fine—*Snowflake*, white; *Nero*, purple, finely spotted; *Michael Waterer*, crimson-spotted, very fine; *Concessum*, pink, light centre, very beautiful; *Lady Armstrong*, pale rose, much spotted, very pretty; *James Nasmyth*, lilac, blotched maroon, splendid truss; *Helen Waterer*, white centre, edged crimson; *Delicatum*, blush merging into white, spotted brown; *Caractacus*, deep crimson, extra; *Atro-sanguineum*, blood red; *Scipio*, rose, dark spot; *Nigrescens*, very dark, almost black; *Mrs. John Clutton*, the finest of all white hardy *Rhododendrons*; *Alexander Dancer*, bright rose, pale centre, very fine; the always reliable *Everestianum*, lilac, spotted and fringed; *Hogarth*, rosy scarlet; *Cruentum*, lake; *Kettledrum*, purplish crimson; *H. W. Sargent*, crimson; *Mrs. Shuttleworth*, scarlet, lighter centre, much spotted; *Mr. W. Bovill*, rosy scarlet, very attractive; *Vivian Grey*, rose, beautifully spotted; *Lady Claremont*, rosy scarlet, very much spotted; *John Waterer*, crimson, with many others, including *Fastuosum flore pleno*, with its immense trusses of bloom, and certainly should be grown by everyone. Too much praise cannot be bestowed upon *Rhododendrons*; their evergreen foliage cheers the year round, and in their season of bloom are the most showy of shrubs, besides growing as freely in the atmosphere of towns as in the country, and are not fastidious as to soil and situation, only they do not like lime and bleak exposures.

SYDENHAM.

The following day I visited the General Horticultural Company (John Wills), Melbourne Nursery, and was particularly struck with the number of plants, especially of *Dracenas*, the whole of the houses being crammed with plants of all sizes for furnishing. The roof of a large house was covered with a plant of *Stephanotis floribunda*, with a wealth of trusses of bloom for cutting, and abundance to follow; the trusses afforded by this plant in a season must be enormous, equally good results being obtained from *Jasminum grandiflorum*. Successful as have been Mr. Bause's efforts

as a hybridist with *Dracenas*, still greater results are likely to be accomplished with *Anthuriums*, the spathes being remarkably large, flat, and bright in colour. *Nepenthes* are also well done. The crowning feat of all is the effecting of a cross in Ferns; that fine *Adiantum Bausei*, being a cross between *A. trapeziforme* and *A. decorum*, partaking more of the character of the latter parent, is of great decorative value and possesses a good constitution. A houseful of *Gloxinias* in bloom was very attractive. The named sorts were eclipsed by the seedlings for size of flower (some being 4 inches across), brightness, purity of colour, and distinctness of marking, which to my taste are much more handsome than the freckled flowers of continental origin, which lack size and are as compared with the others sparse in foliage. I may like the fancy flowers, but it will not be until they are larger, have more substance, and better foliage. Mr. Bause is not only to be complimented on his success as a hybridist, but as an expert propagator and skilful cultivator, in combination with a courteous unassuming demeanour, and as free in seeking as in imparting information.

THE CRYSTAL PALACE.—I shall offer but few observations upon this well-known place of entertainment, only it may be remarked that time may be employed usefully and instructively in a visit. Grand Tree Ferns, noble Palms, and *Acacias* in stately tree forms; as seen here they bear little resemblance to cramped pot plants. Here may be seen in all its glory that fine pillar and roof-covering plant, *Ruscus androgynus*. Outside there was evidence of beds recently turved over, showing the decline of the bedding system; and this is clearly a move in the right direction, as one-half the gardens throughout the country have the lawn spoiled by cutting it up into meaningless beds. More lawn, always pleasing, meaning less beds for summer plants and more space for the display of evergreen trees and flowering shrubs, associating with the *élite* of flowering plants in natural arrangement rather than in stiff geometrical designs. The lakes greatly needed water, and the cascades were being removed, which when effected and turved over will be a great improvement. The shrubs in the groups are planted, not to present a plane surface rising up like a bank, but are so disposed as to have a fine tufted appearance, assuming for the most part their natural forms.—G. ABBEY.

CUTTING DOWN AND TRAINING PELARGONIUMS.

THIS being the season for cutting down the plants and preparing for fine specimens, we answer inquiries from "J. D., Leeds," and F. Wilson, and no doubt anticipate some others, by publishing the following notes by a highly successful cultivator.

The annexed engravings show plants from the first start in October in small pots up to a fully formed plant. Fig. 21 is a young



Fig. 21.



Fig. 22.

plant, the head of which has been taken off to form a cutting, and the buds of which are breaking into young shoots. Three shoots are produced, and those after growing to the length of 4 or 6 inches are stopped by pinching out the points, produce their lateral shoots and flower in the autumn; and after being thoroughly ripened by exposure to the full sun, are cut down as represented in fig. 22. This is what in nursery parlance is termed a young stool or bottom, and is the sort of plant which an amateur should select to grow into a nice specimen. In fig. 23 we have the same plant grown another season and cut down; and here it will be seen it has added materially to its size, and has become a really fine groundwork for a specimen plant. But to form these bottoms is not quite so easy as to write about them. Young *Pelargonium* shoots are brittle, and hence considerable care and patience are necessary to get the shoots into the requisite form. We first begin with long hooked pegs, and peg the shoots into their places a little at a time, say depressing each shoot a little every three or four days, until it gets into proper shape; always, if possible, taking advantage of the sunny part of the day and allowing the plants to be rather dry at the time. In the afternoon of a sunny day, and before watering the plants, you may take much greater liberties with the young shoots of a *Pelargonium* than would be

safe in the morning, and hence that time should always be chosen. When the plants get too large for pegs small sticks of the necessary strength are used, placing them wherever it is necessary to draw the branches to, and to avoid using many stakes a band of bast, mat, or wire is passed round below the rim of the top and made fast; a piece of fine matting or string is then tied to the various branches, and each is drawn into the position it is destined to occupy. When the branches are depressed below the level of the rim of the pot an arrangement of this kind is indispensable, and independently of that it is a very neat way of accomplishing our aim. Without a properly formed stool it is impossible to get a perfect plant, and therefore no pains must be

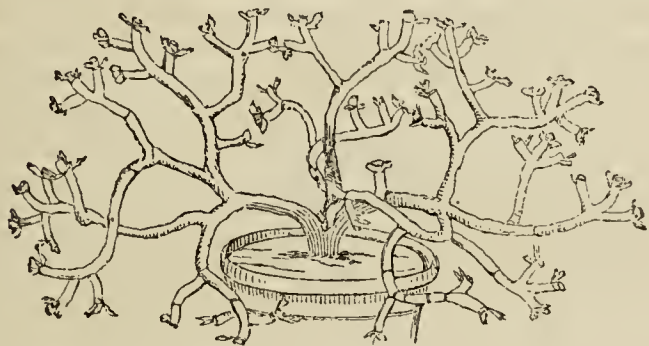


Fig. 23.

spared to arrange the branches properly before they get too much crowded with foliage. Sometimes branches are liable to split in the fork—that is, where they start from the parent stem, and then before attempting to train them the branches must be tied together by means of strong pieces of soft matting. Thus arranged, with perseverance and patience, the plants may be made to assume any form you please; but they must be gently handled, and hence never attempt to train a plant except when you have leisure to do so carefully and without hurry.

In fig. 24 we have the plant advanced another year, and it is

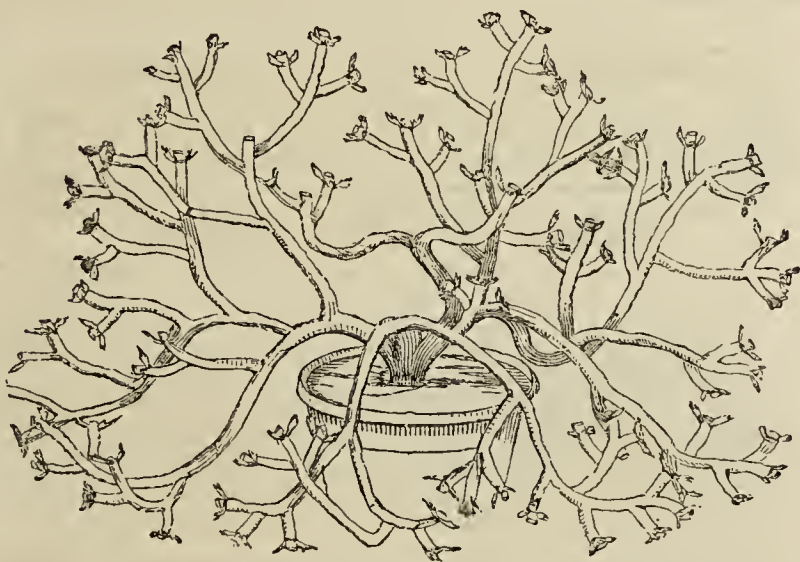


Fig. 24.

now of a size sufficiently large for all ordinary purposes. Such a stool, with proper management and if of a free-growing Fanev kind, would form a plant from 4 to 6 feet in diameter, and should produce more than a thousand trusses of flowers—a sight worth seeing, and an ample recompence for the trouble that has been taken in its formation. The stools represented in our engravings are not ideal sketches, but actual portraits of plants.

After the plants are cut down the growths may be made into cuttings, and at this period of the year there is no better plan of striking the Show varieties than by inserting the cuttings in sandy soil in the open air and in the full sun. These make stocky vigorous plants, and if the wood is well ripened very few cuttings fail to emit roots. The Fanevies strike better in pots under glass.

After being cut down the plants are left in the pots to break, and are then shaken out. This shaking-out is a complete work. Every particle of soil is washed from the roots, and these are trimmed and repotted in smaller pots, throwing in a dash of silver sand as the work proceeds. These cleansed roots forthwith emit vigorous spongioles, and the older plants are made new again. The Fanevies are treated in the same manner, but they are less robust and long-lasting, and in order to gain vigour they are often grafted on the Show varieties. Grafting is done at the present

time, the stock being in advance of the seions, and the grafted plants are stood on a north or shaded border until the union is completed. By that simple means vigour is imparted to tender and delicate varieties.



KITCHEN GARDEN.

Potatoes.—The appearance of this crop is being marred as regards the early and second early varieties by the disease, the tubers in many instances likewise being affected to an alarming extent, and unless the weather become fine and dry late crops can hardly fail to suffer from its ravages. As to the best course to pursue there is none so effective as lifting, but if this be done before the tubers are moderately well ripened the quality is very inferior at first, but improves greatly when the produce is carefully stored. When the skin has become firm the tubers may safely be lifted, separating the bad from the good, and those which are sound will generally remain so and improve in quality. The diseased should be removed from the ground, whilst the haulm must be cleared away and burned.

Prepare ground for the main crop of autumn-sown Onions and winter Spinach, both of which should be sown between the 6th and 10th of next month. Give the Spinach plenty of space between the rows, 18 inches is not too much, and afford an open yet sheltered situation. Sow Lettuce seed at once for affording a late supply, and lift the plants before severe weather for continuing the supply in frames after the outdoor supply is cut off. A sowing should also be made about the 6th to the 8th of next month of Brown Sugar-loaf Cos and Stanstead Park Lettuces for planting in frames to give a first early supply in spring. A sowing of Chervil made now will stand the winter without running to seed. Where winter Carrots are grown outside the present is a good time to sow the seed, the Horn or Intermediate varieties being most suitable; sow in drills about 10 inches apart. Sow Cabbage seed from the 6th to the 8th of next month for the main crop, and see that the earlier-sown plants do not lack attention in pricking-off as they become ready, as the sturdier they are kept the more surely will the plants pass the winter. Winter Radishes—Black Spanish, China Rose, and Californian Mammoth—should now be sown, and occasional sowings at intervals of the summer varieties. Another good breadth of Turnips should be sown in an exposed situation. Complete the planting of Broccolis for late use as early as possible, also autumn Broccolis and winter greens, or whatever may be most required. Continue to sow and plant-out the earliest Endive, and earth-up the earliest crop of Celery, previously supplying water liberally if necessary, and complete as soon as practicable the planting-out of late crops. Shallots, Garlic, and the earlier varieties of autumn-sown Onions should be taken up when growth has ceased, spreading the bulbs over the ground for a few days, so as to have them well dried before storing.

FRUIT HOUSES.

Vines.—Unless the foliage is very good there is some difficulty in keeping black Grapes in good condition at this season, as the sun injures the colour of the berries, therefore a little whitewash or other light shade placed on the roof lights may be advantageous in some cases. Examine the bunches for decayed berries, and keep the house dry, and as cool as possible. Vines in the earliest house will require a dry warm atmosphere to thoroughly ripen the wood, as upon this depends the production of compact well-formed bunches next season. All laterals and late growths must be kept in check, and complete rest brought about by gradually allowing the borders to become dry, but not to the extent of cracking. The late rains will have a tendency to keep early Vines growing that are planted in outside borders, to prevent which protect them from further moisture, to induce early maturity. Ventilate houses freely in which Vines of the variety Lady Downe's are planted until the Grapes commence ripening, affording sufficient fire heat at night to maintain a temperature of 70°.

Inside borders of late houses must be well attended to in watering, occasionally supplying weak guano water. No injury will result to the Grapes from watering the borders though the fruit be advanced in colour, providing it be done in the early part of the day, so as to allow the surplus moisture to be evaporated before closing time. The laterals should be kept pinched, not allowing them to become crowded and then have to remove them in quantity, giving a check often resulting in shanking. Young newly planted Vines should be kept in full growth for some time to come, maintaining a humid atmosphere and a night temperature of 65° to 70°, closing early in the afternoon, and allowing an advance to 90° or 95°.

Peaches and Nectarines.—The trees in the late succession houses must have every attention in syringing to keep the foliage free from red spider, and the inside borders must have copious waterings whenever necessary, assisting weakly trees and those heavily cropped with liquid manure. Keep the shoots tied-in as they advance in growth, and the laterals well pinched back, especially those from strong growth. Cease syringing when the fruit commences ripening, but maintain a fair amount of moisture by damping available surfaces frequently in bright weather, admitting air freely. To assist in the colouring of the fruit they should be exposed as much as possible to the influence of the sun and air by removing some of the foliage where too thickly placed, and where the fruit is on the under side of the trellis the shoots may be untied and regulated, so as to bring the fruit to the light. Trees from which the fruit has been gathered should have the bearing wood of the current year cut out, and the wood for next year's bearing where too crowded well thinned out, so as to permit sun and air to have free access to the foliage, employing the syringe freely to destroy red spider, and keep the borders moist, not allowing them to become dry.

ORCHARD HOUSE.

Some of the trees growing in pots may be placed in the open air, especially Pears and Plums, and in some instances Peaches and Nectarines, arranging them on a hard bottom and in a sheltered yet sunny situation, and plunge the pots in ashes. If it be desired to accelerate the ripening of the fruit it may be effected by closing the ventilators as early as 5 P.M. and opening them about 7 A.M. Syringing the trees should be continued every evening at the time of closing the ventilators until the fruit is ripening. Let Peach and other trees which are swelling their fruit, whether in pots or planted out, be liberally treated with surface dressings, supplying also weak liquid manure. Stop or pinch back very luxuriant shoots, and as soon as the fruit is gathered from any tree cut out all weakly growths and recommence syringing. Peach, Nectarine, and Plum trees in pots should be returned to the house for ripening their fruit unless the weather should prove unusually bright and warm; but Pears must be allowed to mature out of doors unless the weather be very wet or cold, as to return them to the house for ripening would deteriorate the flavour of the fruit.

PLANT HOUSES.

Azaleas.—The plants when placed outside must be stood upon a hard bottom impervious to worms, and the pots should be protected from the sun, otherwise the roots will be liable to injury from the heating of the sides of the pots. Slight shade will be necessary until the plants become inured to the sun's rays. A temporary awning may be employed, or, what is better, a slight framework sufficient to carry a roller and canvas covering that can be run down when the sun is powerful, or at night or other time when heavy rain threatens. Where no such contrivance can be had the plants should be laid on their sides during heavy rains, and be careful not to allow the plants to suffer by insufficient supplies of water.

Hardwooded Greenhouse Plants.—Placing these outdoors is injurious to some, whilst others are benefited. The chief of the latter are Acacias, Adenandras, Cytisuses, Correas, Dillwynias, Epacris, Eriostemons, Chorozemas, Tetrathecas, Pultenæas, Polygalas, Pleromas, and Heaths; and although Boronias, Hedaromas, Leschenaultias, and Pimeleas will flower freely without exposure, placing them outdoors preserves them from mildew through the autumn and winter. Aphelexises, though free-flowering when not exposed and are not subject to mildew, yet retain the flowers better for a short exposure. Statices, Dracophyllums, Acrophyllums, Gompholobiums, Roellias, Witsenias, and Hoveas should not be placed in the open air.

Pelargoniums.—Early-flowered plants will be ready for cutting down, large or full-sized plants being cut back to within two or three eyes of last year's wood, young plants being allowed a couple of eyes more to each shoot, having the soil moderately dry, or the roots will suffer. The plants should be placed in a frame with the lights well tilted, syringing lightly every afternoon to induce fresh growth, affording no more water than is necessary to keep the soil moderately moist. Zonal Pelargoniums, especially the double varieties for cutting, are fine for conservatory decoration, and flower continuously with the assistance of liquid manure given weak and clear about twice a week before the soil becomes too much exhausted.

Fuchsias.—Young plants are much to be preferred to old. Shoots of free growth should be chosen during the next month and struck in gentle heat. When rooted pot-off the plants in 3 or 4-inch pots, employing good loam with a sixth each of old thoroughly decayed dung and leaf soil with a sprinkling of sand. Place the plants near the glass in a temperature of about 50° at night. In about two months shift them into 6-inch pots, and keep the plants growing well up to the light during the autumn and early winter. Any old plants that have flowered and become shabby may be rejuvenated by cutting back the growths slightly and thoroughly cleansing them of aphides, thrips, or red spider by syringing with an insecticide and removing an inch or two of the surface soil, adding new and rich compost, placing the plants in a house or pit where they can be kept close and moist by syringing morning and evening; they will start freely, showing numbers of flowers without making much wood, coming into flower in about six weeks, and if assisted with liquid manure will flower until a late period in autumn.

TRADE CATALOGUES RECEIVED.

Paul & Son, The Old Nurseries, Cheshunt, N.—*List of Strawberries.*
Ewing & Company, Norwich.—*List of Clematises and Roses.*
W. Dobbie, 62, Preston Street, Faversham.—*List of Pelargoniums and Fuchsias.*



** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Orchids (Z. L.).—They are grown well at Burford Lodge, Dorking, the seat of Sir Trevor Lawrence, Bart., M.P., and in the leading London nurseries.

Moths (L. T. T.).—We have not received the moths to which you refer in your letter of the 25th inst.

Address (T. McKenzie & Son).—We do not know the address of the gentleman you name, nor have we seen the pamphlet to which you refer.

Index (A. C. H. O.).—The index to which you refer was published with the last number of the volume, and was, or ought to have been, sent with every copy of the issue of June 24th, and can still be had from the publisher.

Souvenir de Malmaison Carnation (C. D.).—We have had plants flowering from June onwards till October, but it is impossible for us to state from your description of the growth whether your plant will flower this season or not. If it does not it will probably produce fine flowers early next year.

Mealy Bug on Vines (J. B.).—If you read attentively what is published in the present and the last issues of the Journal you will be able to select the remedy that applies more particularly to your case. It is most difficult to eradicate this insect after it has been allowed to increase and infest the foliage and bunches.

Exhibiting Cut Flowers (North Devon).—If you have quoted the words of the schedule accurately the class is about the most unsatisfactory one that has come under our notice. No one can answer your question but the Committee who prepared the schedule. Apply to the Secretary.

Seedling Viola (J. S.).—The colour is rich but not unusual, and the flowers possess good form and substance. If the plant is of compact growth, and a free, early, and continuous bloomer, the variety is worthy of preservation; but we do not think it likely to be of substantial commercial value.

Fungus on Roses (H. E. W.).—Your Rose tree is attacked by the orange fungus. For the remedy see reply to "M. J. L." on page 79 of our last week's

issue. *Geranium striatum* is a rare and doubtful native. It has been found in Cumberland, Cornwall, Chepstow, and near Teignmouth, in the same locality that probably you have found it—viz., Bitton Wood.

Earthing White Beet (*E. G.*).—It is a great improvement to earth up the stalks of the White Beet in the same manner as Celery when they are intended to be peeled and eaten as Seakale. No vegetable is more benefited by the application of liquid manure than the White and Brazil Beets.

Canterbury Bells not Flowering (*J. M. A.*).—The seed was not sown soon enough. It should be sown in May or early June. It is only during favourable seasons that the plants from seed sown in July flower freely the following year. Your plants, however, if they pass the winter safely, which they usually do when grown in well-drained soil and not too crowded, will make a grand display next year.

Mealy Bug on Vines (*E. D. C.*).—You will have read what is published on page 63. In your case we can only advise you to dissolve about 3 ozs. of soft soap in a gallon of water, adding to it half a pint of tobacco water, and with this sponge the leaves; 4 ozs. of nicotine soap dissolved in the same quantity of water will answer equally well. See also what is said on the subject in this week's Journal. War should be waged against this insect both during winter and spring. Some gardeners have so much work of various kinds to do that without a little extra assistance occasionally they cannot devote the time that is necessary to eradicate this most troublesome and injurious insect.

Grapes not Colouring (*A Constant Reader, Devon*).—If the foliage was injured by the bursting of the fine, and also by the application of sulphur to a too highly heated surface, that is quite sufficient to account for the present condition of the Grapes, and the heavier the crop the greater would be the defect in the ripening of the fruit. There is no remedy this year, but we should cut the Grapes as soon as possible and allow the Vines to make free growth. If you do this, and crop lightly next year, the fruit will probably ripen and colour well.

Pteris serrulata cristata (*H. H.*).—The frond you have sent is very decidedly crested, or rather tasselled. If your seedling is a good grower we think it a very ornamental variety, yet not superior to others already in cultivation. The finest form of *Pteris serrulata* that we are acquainted with is *P. s. cristata* major, which, we think, originated at Chiswick, and there are some splendid specimens there now 3 feet high and through; this variety, however, can only be increased by division, as it does not come true from spores.

Laurels versus Sweet Bay (*B. Martin*).—The common or Cherry Laurel is the *Cerasus Lauro-cerasus* of botanists, and is included in the natural order Rosaceae. The Sweet Bay is a true Laurel, and is named *Laurus nobilis*; it is very distinct from the common Laurel, being widely separated from it in all natural classificatory systems. It is included in the order Lauraceae, which also contains the Camphor and Cinnamon plants. The term Bay, therefore, cannot properly be applied to the common Laurel.

Criticism (*Old Subscriber*).—We thank you for your criticism. It is well merited, but why did you not send us your name and address? We are all liable to make oversights in the hurry of presswork. The Strawberry, it is true, was not approved by the Fruit Committee when it was exhibited in 1878; but how many fruits and flowers have had to be exhibited again and again before they received the approval that was coveted for them. You ought to know that in this last case your criticism is ill founded.

Begonia lucida (*E. D. C. T.*).—The above is the name of your Begonia; it is sometimes also called *Saundersii semperflorens*, from its continuous-flowering character. It is one of the most useful for flowering in the winter in a temperature of 55° to 60°, and is valuable for affording flowers for cutting. It is readily increased by cuttings, which spring from the base of the plants; the older flowering shoots strike freely, but seldom make good plants. It succeeds well in a greenhouse or frame during the summer.

Grapes Scorched (*F. J.*).—The Grapes on the Vine in your ground viney are seriously scorched, the result, probably, of the case having been kept closed too long in the morning, and then much air being admitted to lower the temperature. Leave the ventilators slightly open all night, admitting more air immediately the temperature commences rising in the morning. If with this treatment the scalding continues, sprinkle a little whitewash on the glass to subdue the effects of the sun. Scalding of the berries and scorching of the foliage of Vines are always most prevalent during a fitful season of cloud and sunshine suddenly alternating, and after several dull days a slight shade applied to Vines that are prone to scorching immediately the sun is again powerful is often a wise precaution; but Vines in good condition and well managed rarely require shading.

Melons Unhealthy (*Idem*).—You may well complain of the Melons not setting their fruit, and had we known the condition of the plants we should have added to our former reply. There are at a moderate computation at least five hundred aphides on the two leaves sent. You must sponge the under surface of every sound leaf at once with a solution of soft soap and tobacco water, or other approved insecticide, of the strength that has so often been recommended in these columns. Unless you destroy the insects they will speedily destroy the plants. Remove the very much injured and partly withered leaves and burn them.

Millipedes in Strawberries (*E. J. R.*).—The small "worm-like creatures" did not arrive in a condition to be carefully examined, as the Strawberry and portions of roots were very imperfectly packed. The name of the pest that is so numerous is, we think, *Julus guttatus*, which often attacks ripe fruit as well as roots. We know of no means of banishing it from gardens, but gas lime dug into the ground in the autumn and dressings of salt and soot in the spring might be beneficial.

Vegetables for Gardeners (*Ramallo*).—When a gardener is allowed vegetables from his employer's garden it is understood that he has the surplus, and we cannot understand any gardener so indiscreet as to take what is required by his employer; in fact, a gardener engaging on the above conditions virtually undertakes to grow sufficient for his employer's use and his own too, and he is fully justified in doing so. When vegetables are not mentioned in an agreement a gardener has no "right" to take them. Most employers, however, having a good man, usually allow him to have a portion of the produce that would probably otherwise be wasted; but he is not justified in "supplying himself with what he wants" without permission. It is always best to make a precise arrangement on this matter which is clearly understood by both master and man.

Grapes Scalded (*Inquirer*).—Read the replies given to other correspondents on this subject. You say nothing about the temperature provided for the

Vines and system of ventilation. If the night temperature is 70° to 65°, and you ventilate freely night and day, we can only suggest that you sprinkle the glass over the affected Vines with limewash to break the direct rays of the sun. A low night temperature followed by a great increase of sun heat before the ventilators are opened sufficiently in the morning are conducive to the scalding of the berries.

Pansy Flowers Eaten (*J. S. J.*).—The flowers are probably eaten by small snails or slugs, and if you examine the plants at night with the aid of a lantern you will no doubt catch the depredators at work, enjoying what you will take care is their last meal. By spending a little time every night in searching for the marauders you will soon reduce them considerably. We should also sprinkle soot amongst the plants, blackening the ground with it. This would check the slugs, and at the same time benefit the plants considerably by improving their growth and heightening the colours of the flowers. We are obliged by your letter, and your suggestions shall have our consideration.

Vines for Cool House (*J. T. B., Preston*).—You cannot have a better variety than the Black Hamburgh. A Vine planted at one end of the house and allowed to make all the growth possible the first year, shortened at the winter pruning to a length of 2 feet or so, this being trained along the front at the base of the rafters, and in spring one shoot being trained up the roof and another left for extension, to be shortened at the next pruning at 4 feet, again taking two shoots, one up the roof and the other for extension, and so on each year, would thus occupy the whole roof—that is, the main rod would be trained along the front, and four canes taken from it would furnish the roof. The end canes should be 2 feet from the ends of the house, and the others 4 feet apart, and the whole trained not less than 16 inches from the glass. Two Vines would, of course, furnish the roof in half the time that one would; or if you desire Grapes quickly you might plant four Vines, bearing two or three of them heavily for a year or two, then removing them, the strongest and most healthy being in the meantime allowed to extend to occupy the entire roof. This, with such short rafters, would be better than training one Vine to each rafter. Vines thus grown on the extension principle usually succeed well in ordinarily fertile garden soil mulched with manure. We will readily render you all the aid we can on your stating your requirements and conveniences explicitly; but we cannot undertake to name varieties of Zonal Pelargoniums, nor any other florists' flowers. Your plant from which the leaf is taken is perhaps *Saxifraga sarmientosa*, but the leaf was much crushed, and no flowers accompanied it, which are necessary for correct nomenclature.

Potting Cyclamens (*H. T. H.*).—The following extract from our "Greenhouse Manual" may be of service to you:—The time of starting the established plants is in the end of July, the beginning of August, or later, for after the plants have flowered, or whether they flower or not, they are kept under glass until the middle of June, and then plunged in frames or out of doors. Drying-off the roots or corms impairs the vitality of the corm, and destroys the majority of the roots, which are as perennial as the corms. From the end of July they should be examined frequently to see when they begin to grow, and if the soil is dry at that time water is given. Withdraw the pots from the plunging material, take the plants to the potting bench, turn them out of the pots, remove as much of the old soil as will come away freely without injuring the roots, and repot in the same size of pot. After repotting place the plants in a cold frame, keep them close and moist for a few days, and then admit air freely. Take care not to overwater, and sprinkle overhead every afternoon on closing the frame. By the middle of September they will be growing freely; the pots will be full of roots, and the plants may be shifted into 6 or 9-inch pots, or be flowered in those in which they were first potted; in either case they may be removed to a house with a temperature of 55° at night, placing them near the glass, and admitting air freely. A stove, or any house where there is a temperature of 55° at night, is suitable. Here they may remain until they flower, when they should be removed to a house with a temperature of 45° to 50°. Two parts of light fibrous loam, one of sandy peat, one of leaf soil, and a sixth part of silver sand and small charcoal, forms a suitable compost. This manual would probably be of great use to you, and can be had from this office post free for 10d.

Insects on Vines (*J. T. S.*).—It is no trouble to us to answer inquiries when we can do so usefully to those seeking information. There happened to be no insects on the Vine leaves you sent, your letter implying that you had destroyed them; but the Melon leaves were infested with the red spider, indeed we have seldom seen a worse case. The insects on the Vines you say are the same as on the Melons. We have no doubt they are, and we are quite certain those on the Melons are red spiders. Your description of them as seen through a microscope quite confirms this, though you appear to think it does not. When the red spider is young it is a pale greenish red; it then changes to a bright red and is very active in its movements, but when it becomes old it is just the colour you describe, and moves as you say, slowly. The insects you examined were old; on the Melon leaves we found the red spider insects in all stages of growth. As we gathered from your former letter that you had destroyed the insects on the Vines, of which the leaves sent appeared to afford proof, we advised you, for another reason, not to syringe; we now advise you, however, as the Vines appear yet infested, to give them a thorough washing, directing the water as forcibly as possible to every leaf. Five or six gallons applied to a full grown Vine will not be too much, in fact you cannot wash them too thoroughly. Choose the early morning of what is likely to be a dry but not a very bright day for the washing, and then throw wide open all the ventilators to dry off the moisture, much of which you can remove by shaking the Vines. A syringing like this once a week will be a great benefit by washing off most or all of the insects. In the meantime ventilate very freely. We repeat, the warts on the leaves are not caused by either insects or fungus, but are the result of injudicious treatment. The leaves afforded us clear and unmistakable evidence on that point. Your Melons, which have been much neglected, are, we fear, beyond cure, but the Vines are far from hopeless.

Names of Fruit (*E. D. C. T.*).—It is the Kentish or pie Cherry.

Names of Plants (*Miss Briscoe*).—The long leaf is that of a weed, a species of Dock, which has come up in the soil in which the *Caleolaria* seed was sown, and which appears not to have grown. The berried plant is *Solanum nigrum*, also a weed. (*J. T. B., Preston*).—We do not undertake the naming of varieties of Pelargoniums, and if we did, you afforded us no means of doing so, as nothing arrived but a number of loose petals. (*H. E. White*).—*Epilobium angustifolium*. (*H. W.*).—Both specimens were completely withered and unrecognisable. (*A. Boyle*).—*Lysimachia vulgaris*. (*D. W. B.*).—*Lysimachia vulgaris*. (*W. M.*).—*Cattleya intermedia*. (*S. G.*).—1, *Veronica spicata*; 2, *Dictamnus Fraxinella*; 3, *Funkia ovata*; 4, *Helichrysum argenteum*; 5, *Lysimachia vulgaris*; 6, *Epilobium angustifolium*. (*W. Begbie*).—1, *Scabiosa columbaria*; 2, *Ononis arvensis*. (*W. H. Myers*).—1, *Lychnis chalcidonica*; 2, *Veronica spicata*; 3, *Sedum ibericum*; 4, *Sedum neglectum*; 5, *Oenothera taraxacifolia*; 6, *Spiraea Filipendula flore-pleno*.



POULTRY, PIGEON, AND BEE CHRONICLE.

THE ADVANTAGES OF AUTUMN CULTIVATION.

THIS is one of the most important subjects connected with agriculture. It is, however, generally identified with cleaning the stubbles after crops of corn and pulse. By attending to this matter the home farmer will be enabled to cultivate the land under his management to the best advantage, and with a quicker succession and rotation of crops. Although it is called autumn cultivation, yet it is practically the commencement of the agricultural year, for it is after the harvest has been gathered-in that autumn cultivation really commences. The theory on which this early tillage is advocated is that couch grass and other root weeds as soon as the crops are cleared after harvest are really at the weakest, not having extended their roots much below the surface. As soon, however, as the crops are removed, if the couch, &c., is allowed to remain undisturbed it spreads rapidly both above and beneath the surface of the ground. In case the cultivation is deferred altogether until the winter or spring it gives the farmer infinitely more labour at the busy period; sometimes the fallowing process may be prevented entirely, or the season for sowing root seeds or early Lent corn will be so far delayed as to greatly diminish the prospect of good crops. The advantage of this early preparation is enhanced by the certain benefit of but little work being required in the spring; in fact, the ground not being deprived of its moisture, all seeds sown at that season will be sure to vegetate immediately.

There is certainly no more important operation in agriculture than eradicating couch and weeds, for we cannot expect to grow full crops on foul land. Weeds are the most insidious enemies of farming, for it is common amongst farmers in speaking of couch grass to say there is so little in such a field that it will not injure our next crop, thus forgetting that whilst the corn may be growing the grass and weeds are daily increasing. The only way to successfully overcome the weeds is to attack them in their infancy, and this brings us to the consideration of the first and best means of commencing operations against them. Let us, for example, take a Wheat stubble which is intended to be sown with the seeds of Rye, Vetches, Trifolium, or any green crops for food of stock in the spring. We recommend the home farmer to select for this purpose the cleanest stubble on the farm, so that no grass, &c., may interfere with the growth of the fodder crops, but that when the green crops are removed the land may be sufficiently clean to be ploughed and sown for root crops immediately, as there is then no time to clean the land without losing the proper seeding or planting time. Now, in order that the land may really be clean enough to receive the seed of fodder crops upon nearly all the mixed soils, and especially after wheat sown on a clover lea, there will usually be more or less of bunches of couch or onion grass, either of which should be forked out. This operation, which is usually done by women, can be carried out at a cost varying from 3s. to 6s. per acre, after which the weeds should be removed to a heap; the land will then only require to be once ploughed before seeding to green crops, and no time will be lost before sowing the seed.

The next thing to be considered is the treatment of stubble land intended for Lent corn or pulse in the following spring. We must, however, take it up in two divisions—the treatment for light and dry soils first, and secondly for heavy and strong soils. In the

former we find couch and other weeds the roots of which dive into the soil a considerable depth; in this case, whether we cultivate by horse labour or by steam power, we must till deeply and not to leave the grass under. In fact in all autumn culture of this kind, and with this object in view, steam power is best, simply because it can be done in the least time, and we cannot prolong the time, as we can only reduce the labour into the shortest possible period by steam culture. The first operation, then, is to cultivate with the points as deep as the land has been ploughed on former occasions, and as soon as the steam cultivator has been over the land one way we advise taking it over the second time across the first work. The land will then lie rough, or at least the clods and bunches of grasses will lie sufficiently loose and on the top to be treated by horse or ox labour with Howard's patent self-lifting drag. The ring roller may then be used, but not until the couch is entirely brought to the surface, and to this point the attention of the home farmer must be carefully directed. Then should succeed as many draggings and rollings as will enable the chain harrow to operate in collecting the grass and root weeds into heaps or rows, and in case the weather should be dry enough burn the weeds in small heaps, and spread the ashes. However, should the weather be showery and uncertain there must be no delay, because the couch must then be carted away to heap or otherwise disposed of, in order that the drag may be employed again, so that all the couch remaining should be combed out and disposed of to render the land clean enough to be winter-ploughed after the Wheat seed time is over. It must, however, be remembered that in extremely foul land it may be requisite after the first crop of couch has been removed to steam cultivate as at first, and again follow by dragging, rolling, &c., and the couch being again disposed of either by burning or carting to heap. We like the carting away to heap, because it is a rule we recommend in agriculture never to burn anything which will decay unless we actually need ashes for drilling purposes. Couch when drawn off to heap or laid out on pasture land for manure never requires so much labour besides the carting, as it does for the burning; therefore time as well as labour is saved, besides being comparatively independent of the weather during the work of removal.

The above remarks apply chiefly to dry chalk, gravel, or sand, and the varieties of friable loams; but we must now refer to tillage of heavy loams or clay soils. In doing so we will again take a Wheat stubble, and as upon the generality of such land the white-rooted couch does not prevail; but we find chiefly the fine running grass, which spreads over the surface only, and is commonly called water grass, and where this predominates the deep moving of the land as a first operation is not necessary; therefore Coleman's scarifier with shares on—if worked about 2 inches in depth, or as shallow as will move the surface of the land at a regular depth—will be sufficient to cut the small fibrous roots of the running grass, after which it may be dragged with Howard's implement, before referred to. The ordinary iron harrows will also loosen the grass from the land, and it may then be treated and collected with the chain harrow, so that the grass and other weeds may be either burned or carted away as may be most convenient, after which it will require careful examination to observe whether any grass is left, in which case the former work must be repeated. There will still be another matter to be noticed, for in the ease of small ridges and deep land furrows some grass will be found in them; we then advise the use of the double mould plough with a new cutting share, which will reach all the grass in the furrows, and will be lifted out by the double turn furrows on either side, and then by using the harrows lengthways with the furrows the grass will be brought to the surface free from the earth, and may be collected by the use of the chain harrow.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Work of every kind that can be done by the horses in anticipation of the harvest should now be attended to, so that as little as possible of the necessary work may be left undone at the time of harvest. It may now in most instances be decided whether the produce of certain fields either of Wheat, Barley, Oats, Peas, and including the second crop of Clover hay, shall be stacked in the field where grown or carted to the barns or rickyard. The materials for making the stands for them may be carted to the spot required, such as bawns, and also the straw for thatching. If more is wanted of either material than is produced upon the farm it should be purchased and got home, and placed ready for use, in order that the horse labour so valuable at all times may be economised, and not displaced at the busy period. If it is intended to sow Turnips in the stubbles after cereal crops or pulse, such as winter Beans, Peas, Vetches, &c., both seed and manure should be obtained and prepared for use at short notice. The latter, whether of dissolved bones, superphosphate, or other artificial dressing, should be placed in the manure house mixed with ashes, &c., ready for use when required. In the case of the Turnip seed being drilled it should be done every day as fast as the corn is cut, and the seed with manure drilled whilst the land is soft, moist, and kind, which is the important point in growing stubble Turnips, and this may be done upon two-thirds of the land, and then finish the remaining third after the corn is carted. Where there is any land to be seeded to permanent pasture it should be ready to receive the grass seed about the middle of August, because we find if sown much before that date the weeds are apt to overpower the young grass plants. Whatever seeds are selected it is best to sow the heavy seeds, such as Clover, separate from the light seeds, such as the pasture grass seeds. Unless the land has been previously manured it is best to sow artificial manures in a finely divided state, and we recommend 4 cwt. per acre of bone superphosphate to be sown and harrowed-in with the seeds, because if ammoniacal manures are required it should be sown the next year, otherwise the weeds are too much encouraged if sown with the seed. The second cutting of broad Clover will soon be ready for hay; it is, however, frequently folded off with sheep; but we prefer cutting for hay, or seed, or for soiling cattle, as we find that more Wheat can be grown when cut twice or thrice than when the lattermath is fed off by sheep. This is accounted for chiefly by the extra growth and weight of Clover roots attained, these roots being found to afford great nourishment to the following Wheat crop. The sowing of Turnips after green crops will still be continued with the chance of a fair crop of a quick-growing variety like the Grey Stone, but we prefer planting or ploughing under furrow good strong plants of the Thousand-headed Kale. These will be sure to live and thrive to a much greater certainty, and come fit for feeding much quicker than Turnips sown late. It is, however, expensive to purchase the plants, but we called the attention of the home farmer in the spring to the advantage of growing seeds for his own use of all kinds of Cabbage, Kale, Rape, Broccoli, &c., for he will always find it answer his purpose, as there is sure to be a ready sale for any plants which he may not require if the seed sown was of the best kinds.

Hand Labour.—This has been greatly economised by the use of labour-saving machinery, even at the busy period of haymaking in the park land, pastures, and meadows. The working of the mowing and tedding machines has very much curtailed the time and cost of the work, except in the water meadows flooded by the ridge-and-furrow system where the scythe is still required owing to the uneven surface; but upon catch meadows the mowing machine can be employed again at the time of carting. The horse rake to gather the hay is a saving; and at the rick, instead of the heavy lifting labour in passing the hay from the waggon or cart to the stack, the elevator as lately improved is an immense saving of hand labour. Men will still be required in hoeing root crops both by cutting up the weeds and singling the plants, the cutting of Peas, winter Oats, Canadian Oats, and winter Barley, as well as Rye, as these will all be fit in a few days, and should each in their turn have the attention of the home farmer, and should be cut rather green with the view of not only saving the most grain, but with the advantage of a better feeding value in the straw and haulm of the different crops. The shepherds should now pay attention to the ewes both of Hants and Dorset downs, and if in good order and condition they will offer to the ram early, so as to bring their lambs soon enough to be fattened for the Easter markets, or held on as superior animals for exhibition at the first cattle shows next year. The ewes will generally offer early with a constant change from Saintfoin at day to a folding of Rape at night time. A few cracked Beans, however, will be of great service to them, but as soon as the ewes have been served they may be drafted from the main flock and fed with rather less cost. The home farmer should now secure a well-bred yearling off bull to run with the heifers of the same age, so that the calves may fall as soon as the early grass is ready for the cows in milk. All the young lambs, whether of ewes for stock or wethers for grazing, should be shorn about the first week in August, because they always winter better, as their wool will be firm and reject the rains of winter. When not shorn the sooner they are dipped the better to prevent the fly from striking, but this operation requires great care and attention by the farmer, for we have known serious losses when men unaccustomed to the work have been employed. The dairy cows after the recent rains will be doing better, for they have made but poor returns in milk,

butter, or cheese, the months of April and May having been so dry and harsh, and much against the growth of grass on the pastures. Breeding sows should be kept in a roomy well-littered yard, and besides trough food, should get a liberal supply of green fodder. Rice meal is now cheap feeding, and well adapted for trough food in part.

KERRY COWS—SELECTION AND BREEDING.

LIKE all other breeds of cattle there are degrees of excellence among the Kerrys. Good, better, best are pleasant and possible gradations among them, the two first already being within our grasp, but the higher and most desirable stage has yet to be attained, as it undoubtedly will be in due course. An abundant yield of milk, rich as an Alderney's, a plump and sleek condition, hardiness, small size, and a moderate consumption of food in comparison with that of larger animals, great gentleness and docility, are merits possessed more or less by all Kerrys that I have seen. Keeping these points in view, it is reasonable to suppose that by careful selection the breeder may hope to obtain a herd of cows all up to a given standard of excellence.

Now, it is for the dairy that this breed is unquestionably most valuable, notwithstanding the fact of the beef commanding a higher price than any other in the Dublin market, and it is therefore from the best milkers that we must hope to obtain a select and pure strain, and not by the indiscriminate purchase of any cows imported from the mountains of Kerry. In the first instance recourse was had to imported cattle, and it is from such that the Streame herd sprang. Of the degree of excellence to which this herd has already been brought "D., Deal's" note on page 18 bears witness. I have not yet been able to obtain a cow equal to Dr. Hogg's famous one which gives twelve quarts of milk daily, or Mr. Robertson's still better cow, which was giving sixteen quarts a day last August at La Mancha; but amongst those had from Streame for the home farm here the smallest and best is Daisy just entering her fourth year. She had her second calf in May, and now gives eleven quarts of milk daily. As a heifer this cow was so full of promise that I regretted her first calf was a bull; this year she has a cow calf, a strong healthy well-shaped animal by a pure Kerry bull, and will I hope eventually prove to combine the good milking properties of one parent with the vigorous kindly condition of the other.

The development of the good points in a particular breed of cattle is not an uncertain process; repeatedly has it been demonstrated that natural functions may be brought to and sustained in an abnormal condition. The Shorthorns show this in a remarkable degree, and a glance tells the practitioner whether a particular herd has been bred solely for the production of milk or of beef, or for the best combination of both qualities. Originally Shorthorns were all deep milkers, but now most of the pedigree herds have been so much bred away from milk that the cows are often found not to yield enough milk to rear their own calves. Among breeders of Shorthorns prize beasts have been so much the rage that what may be termed showyard points of excellence have taken the lead of all others—wrongfully as I think. Aptitude to lay on flesh and early ripeness for the butcher, a square-built frame laden with fat and flesh, fore-quarters as wide and massive as the hind, all point to the production of beef at the expense of milk. But then this very numerous and important class of cattle breeders are very apt to pooh-pooh any idea of a dairy. "No milk pails for me," said a breeder of Sussex stock to me once; "I like my steers to be worth £20 at twenty months, and they require every drop of the mother's milk to give them the necessary start."

Naturally the full flow of milk in any cow is of very brief duration, artificially it has been extended almost at will. Careful selection extending through several generations is, however, necessary to fully develop this valuable capacity. In doing it let especial care be taken not to proceed to such lengths as to altogether sacrifice flesh for the produce of milk. In writing this paper I have specially kept the home farmer and his requirements in view. I am a home farmer myself, and in filling any vacancies that occur in the herd of cows kept here for the dairy supply of a large establishment, especial care is taken to select animals likely to give rich milk abundantly and yet fatten readily when done with. I once tried Alderneys, but have done with them. An Alderney eight or nine years old is little better than "a bag of bones." Now the Kerrys give milk rich as the Alderneys, and are always in a sleek condition, most of them having frames of that happy medium between the typical square-built beefy Shorthorn and the typical wedge-shaped milky Ayrshire. Taken in comparison with such huge animals they may be termed models in miniature. Is it this smallness of size that

leads authorities on dairy farming so often to speak of them as something worthy of good-natured notice, but unworthy to be classified with the Jerseys, Shorthorns, and Ayrshires? Granting that Kerrys are not admissible into large herds kept upon rich land for the production of milk for market or for cheese, yet there are great numbers of farms, notably upon poor soils, where a decided and clear advantage would attend the substitution of Kerrys for larger cows often yielding milk inferior both in quantity and quality. The advantage becomes still more striking when it is found that the food required for the sustenance of two large cows yielding together twenty quarts of milk daily will suffice to maintain in better condition three Kerrys yielding from thirty to thirty-three quarts.—EDWARD LUCKHURST.

MANAGEMENT OF POULTRY IN SUMMER.

It is some time since we gave some hints on the management of poultry in spring. Since then summer has come, alas! is passing, and summer has its special cares in the poultry yard. It has often struck us, as the time comes when we begin regretfully to watch the shortening days and the lengthening shadows, that there is some slight consolation in looking at the rapid growth and vigorous development of our young poultry—the hope of the year to come. Thus far the summer has been a favourable one, especially for young stock. We have always found our own thrive well in summers which are showery without being immoderately wet. In very dry seasons the growth of chickens is checked and disease often makes its appearance; the reason of this is manifest—the supply of insect food, so necessary for the natural development of young birds, fails in dry ground, and the ground itself is apt to become tainted. Gentle rains supply the former desideratum, and at the same time purify the soil.

We will speak separately of the treatment of old and young birds. The breeding pens should now, if possible, be separated. Where accommodation is good the breeding cocks should be put into small runs away from the hens; they will moult better in such places, or each one may run with a lot of cockerels and will keep them in order. The hens may be placed together in large batches either at liberty or in large runs. There is one great advantage in this separation—many valuable birds will continue laying. Eggs are now plentiful, and so it is often necessary to send them to market. If the hens are thus widowed there will be no fear of valuable eggs being eaten, or at least of their hatching. Where accommodation is very small of course the best must be made of it. We believe it is often a good plan to take away a cock from the general stock at this season, even if he has to be shut up in a small house, so long as it is clean and dry. We have before stated that if it is specially desired to make hens moult early they should be left two or three weeks upon sham eggs whenever they become broody in the late summer. If, however, this is done too early the moult is sometimes a spurious one, and is followed by a second moult late in the autumn, just when we wish our exhibition birds to be in full plumage.

The young stock, too, now require attention. All should be plentifully supplied with spring water. Too often only a glance is given to see that the pans are full, and full they are pretty sure to be after such heavy thunderstorms as we have had. But rain water will not do; delicate chickens invariably get gapes from drinking it, and older ones often the seeds of disease. The water vessels must frequently be well scrubbed out and filled twice daily with pure spring water; they should, too, be put in the shade. Heated water gives no more refreshment to birds than to human beings. Then it is of the utmost importance that chickens should not be crowded; even where premises are large and there is an extensive range they will not grow well if many are kept together, they congregate and taint particular pieces of ground. Constant thinning is absolutely necessary. Where poultry are only kept for the table of course the necessary killing-off of those required makes room for their successors; but where they are reared for fancy or with a view to exhibition somewhat ruthless weedings must from time to time take place. We have always found our own do best in years when we have, however reluctantly, sacrificed all but the most promising chickens during the summer months. Young birds which are strong and healthy but which fail merely in fancy points will often fetch fair prices for the improvement of farmyard stock, we mean in the case of such varieties as Dorkings, Brahmas, and others which are well known as profitable stock for their special purposes. If, however, purchasers do not come forward we advise that the birds be eaten rather than the yards should be left overcrowded.

In the matter of food we now find three good meals a day plenty; at this season meat is to be picked up by birds with even a moderate run, and the exhaustion of the system from cold is at its minimum. We are convinced that half-grown birds which are

moderately but regularly fed become eventually finer specimens than those which are perpetually crammed and stimulated. As a general rule where space is abundant cockerels and pullets, at least earliest, should long ere this have been separated. Much judgment, however, is necessary in carrying out this rule, and we have observed many cases in which birds have been thrown back and harm done by its universal and indiscriminating application. Poultry are gregarious, and we have often seen two or three fine growing young cockerels when taken away from the brood penned up alone, pine and absolutely go back in size for weeks. When too early pairs of chickens are required for exhibition we leave the sexes together, they are then used to each other and tamed quietly; if, on the other hand, a freshly caught cockerel is penned with a pullet he has never seen before a skirmish is sure to result. We have come to the conclusion that this question of separating the sexes, and when the separation should be made, is one that can only be answered after much experience and with the view to each particular case. In our opinion it is better to keep them both together, quiet and contented on a large run, than to take them off such and confine them in small places. One caution remains to be given—Never if possible let a lot of half-grown cockerels run with the old breeding stock.—C.

VARIETIES.

THE DAIRY FARMING INDUSTRY.—We cite the following from a lecture recently delivered by Professor Sheldon. It is computed that the dairy cows of these islands each yield on an average about 440 gallons of milk per annum, and this is making due allowance for inferior milkers and for stirks and heifers, whose yield of milk is generally smaller than that of fully matured cows. Now, if we base our estimate on a minimum number of 3,700,000 cows in milk—and this is making due allowance for deaths and abortive milkers—we have an annual production of 1628 million gallons, which valued at 7d. a gallon is worth upwards of forty-seven millions sterling a year. I assess the milk production of the country at this price, because it is probably the extent of what it realises to the farmer. But in any case the interests involved in dairy farming in this country are enormous, even if we confine our estimate to milk production alone; and if we include the other interests, such as the sale of surplus stock, we may conclude that the annual income to British agriculture from dairy farming is not much less than that which flows into the coffers of the Chancellor of the Exchequer. The present value of the bovine stock of these islands may be set down at upwards of 120 millions sterling. Farmers' capital employed in bucolic agriculture may be assessed at 150 millions in the aggregate, and landlords' capital at 900 millions, making a total of upwards of one thousand millions of capital embarked directly or indirectly in dairy farming in these little specks in the ocean.

— **NATURAL GRASSES.**—We have received from Messrs. Little and Ballantyne, Carlisle, a treatise on the natural Grasses, which contains some terse and useful information in relation to the culture of Grasses. The principal part of the treatise is, however, devoted to tables of the Grasses suited to different soils and situations.

— **THE TURBIT CLUB.**—We have received a new list of the Turbit Club, from which we see that the Club now numbers thirty members. Among the rules of the Club we observe that "Members be requested not to show Turbits at any exhibition which, in the opinion of the Club, does not offer satisfactory Turbit classification. We understand that at a Show to be held at Bingley on September 1st, classification approved by the Club will be given to this beautiful variety of Pigeons.

— **THE AMERICAN HARVEST.**—According to the American papers just to hand, which have been collecting reports from all parts of the States, the yield of grain for the present year will in all probability be greater than has ever been known before on the other side of the Atlantic.

— **HARVEST PROSPECTS AND THE GRAIN TRADE.**—The prospects of good harvests at home and abroad have reduced the price of corn. The average price of Wheat last week was 43s. 6d. per quarter, or lower than it has been during any corresponding week for some years. The price of Barley last week was 27s. 1d. per quarter, or lower on an average by several shillings than it has been for a very long time.

— CROP PROSPECTS.—In some places (says the *Agricultural Gazette*) the grain crops are quite as bad as they were last year, and when this is the case the prospect to the farmers must be blank indeed. Much must depend upon the weather, and certainly for some days past the sun has done his duty, and vegetation has developed with tropical rapidity. The yield will probably be good, and when there is plenty of straw there will be plenty of corn. On the other hand, over very extensive tracts the crops are thin on the ground, and cannot yield an average return, however favourable the circumstances. We shall probably have one of the finest Potato crops on record. The wet came at the right time, and if, as is probable, we are favoured with a fine time during the next two months, we shall not suffer from the blight. The quality and the size of tubers now being dug are exceptionally fine, and indicate a large crop. We never remember to have seen Potato fields and gardens looking more luxuriant than they do at present. Mangold is almost an universal failure. A large acreage was ploughed up and is now devoted to Swedes. The prospects of winter keep are on the whole good, and root land is cleaner than it has been for some years past. The good prospect of winter keep will tend to make stock sheep dearer. Lambs already feel the upward tendency, and other descriptions of stock will follow.

— ESSEX BEE-KEEPERS' ASSOCIATION.—A Bee-keepers' Association for Essex has been formed under the presidency of the Earl of Rosslyn. Depôts will be established in the principal towns of the county, where cottagers will be able to purchase all the newest and most approved appliances at a very cheap rate, and shows will be held and lectures delivered under the auspices of the Society at various places. There has been a great increase in bee-keeping throughout the United Kingdom during the past seven years, and where cwts. of honey were produced ten years ago tons are now gathered-in and sent to market.

NEW AND OLD COMBS.

"I WANT to buy a stock of bees—a first swarm of last year." This oft-expressed desire implies that young combs are better than old combs. The best time for changing hives and getting them filled with new combs is the swarming season, say from the beginning of May till the middle of July; but this work can be well done at a later period of the season, though with less advantage and a little extra trouble. In some seasons bees yield no harvests of honey, and not unseldom many hives beyond the ordinary number for the apiary are worth more to preserve for stock than to destroy for honey. Last year bees did not swarm well, and generally speaking did not yield a harvest of honey. Many hives with old combs were kept for stock with the hope that this, the present, would be a honey season, and see the apiary swept clean out of old combs. In Cheshire this season so far has been unfavourable for bees, though better than last. We usually condemn almost all hives with combs two years old. Last year this sentence was not carried into execution, and some hives in my garden have combs three years old, but the executioner is at hand to carry out the law. Most of my bees have swarmed this year, and some of the hives have yielded two swarms. A few of the weaker with old combs in them are ready to produce swarms now. All will be made to swarm, and all the old combs will be destroyed. The first three hives already dealt with produced swarms twice this season, and a "turn-out" from each was obtained at the end of three weeks from first swarming. Thus we have nine swarms from the three stocks, combs of which have been destroyed, and which in their destruction yielded honey which has been sold at 1s. 6d. per lb.—32s. in all. The nine swarms have not yet 2 lbs. of sugar each, and some of them have their hives nearly filled with combs. All the black-combed hives have been or will be treated in the same way. One swarm and a turn-out only will be taken from each of the later swarmers, and perhaps the honey of the stocks will realise money enough to feed the swarms into excellent stocks if the weather render feeding necessary. The reader will see at once that my object is not immediate profit, but the filling of the apiary with good and unobjectionable stocks containing young combs and queens. This practice and process of renewing combs and obtaining young queens is simple and intelligible—a little assistance in adverse seasons and circumstances.

The process may be strongly recommended to those who wish to change their bees from one kind of hives to another. The practice of shifting combs as well bees from one hive to another is a bad one and should not be followed. Artificial comb founda-

tions may be employed with advantage if made of pure wax, but old or second-hand combs should not be introduced to hives of any kind, seeing that sugar is so cheap, and knowing that bees can rapidly build combs from sugar syrup. In young combs bees thrive and breed better than they do in old ones. In good seasons for honey swarms that build their own combs rise to the greatest weights. In young combs foul brood is rare, if ever found. In young combs honey is less soiled and pollenised, more easily taken—better every way.

In honey seasons when hives rise in weight beyond 60 lbs.—some beyond 100 lbs.—we drive the bees out of them in September into empty hives and feed them into stocks. In such seasons the hives yield a great harvest of honey, and their bees are sugar-fed into excellent stocks, which in no remembered instance have disappointed us. Weather and seasons may disappoint the bee-master, but his bees if properly managed will in sunshiny weather return good measure pressed down for all the attentions they may receive.—A. PETTIGREW.

EXPERIENCES WITH COMB FOUNDATION.

MUCH that has been written of late, and by some of those who are recognised as authorities in apian matters, has had a tendency to shake the confidence of bee-keepers who wish to keep pace with the march of improvement in our pleasant and profitable science. I refer to the use of comb foundations, properly so called, not mere guides. On the one hand we have some authoritatively stating, as from experience, the almost certainty of failure if any depth beyond 1½ or 2 inches be used; on the other we have masters of the science whose experiments suggest at least the probability of disaster if certain ingenious appliances, such as wires, thread, or wooden bases, be not used to render the use of large sheets of foundation safe. Now as your old correspondent "B. & W." has given in your last issue the results of his "considerable experience with comb foundation for the last three seasons," I trust you will allow me to give mine for the same period, and I venture to think my experience not inconsiderable.

My number of Langstroth hives has been from twenty to thirty—at present thirty-two; the frames 17½ by 8½, and ten frames to each box. Before 1878 I was infected with the idea, of which I would fain cure "B. & W.," that anything beyond 2 inches would be dangerous, and for seven previous years I limited my bee help to that extent only, not indeed with invariable success as to straight combs, but with the invariable production of superabundance of drones, with proportionately diminished produce of more desirable supers. In 1878 I had my first trial with deeper foundations. Mr. Raitt had then imported his first machine, which turned out sheets 4½ inches deep. Determined to give it a fair trial, I ordered 12 lbs., which contained upwards of a hundred sheets, and I considered it the best investment I ever made; two-thirds of the weight were thin for supers; and in six weeks, the whole period that season of honey-gathering weather, I took upwards of 900 lbs. of super comb honey. I bore testimony to the value of foundation in an autumn number of the "British Bee Journal" of that year. In 1879 Mr. Raitt had procured his larger machine, and I ordered a large supply of foundations 16 by 8½. The sheets were so thin that it was with no slight apprehension I began to use them, but in the issue with even a better result than my experience of 1878 as to the safety of trusting foundation pure and simple, for in that year I had one breakdown and not one since, nor a crooked comb, nor a curled corner, although the numbers used by me up to this must far exceed two hundred, as my purchases have reached nearly 40 lbs. This season a freak of my bees, unique in my experience, enabled me to put foundation to as severe a test as it is ever likely to be subjected to. Last month, one day two swarms arose simultaneously and pitched together on one tree, forming a very large swarm. I had scarcely hived them in a large skep when a third swarm out of a 20-inch skep rose and settled on the spot from which I had shaken the other two. I hived it and placed it about 2 feet from the other under the tree to let the stragglers be gathered in, but when I came to remove them in the evening I found the first skep tenantless, and the whole three swarms in one hive, making a weight of bees but a few ounces under 14 lbs. This huge swarm I put into a Langstroth ten-frame box furnished with six sheets of foundation and four perfected combs, and for results I had in forty-eight hours the six nearly as perfect combs as the four, without a wave or curl. Next day I without hesitation gave to a strong swarm nine frames foundation and one comb for immediate convenience of the queen, and with like success. Having had such experience in the use of this invaluable auxiliary to successful bee-keeping, I have felt naturally impatient that your correspon-

dents should throw out ideas calculated to prevent its more general adoption.—GEORGE A. PROCTER, *Rector of Tullamelan*.

MR. RAITT of Blairgowrie, on page 62, invites bee-keepers to state their experience with comb foundation. I have used the comb foundations made by Mr. Raitt and supplied to me by Mr. Abbott for two seasons, and I can confidently recommend it to all intelligent bee-keepers, but I cannot advise them to follow in the footsteps of Mr. Pettigrew. I have used some hundreds of sections fitted with strips of foundation, and I think in only one instance have I found the foundation fallen down; that was owing no doubt to the melted wax being too cold to adhere firmly to the wood. I certainly was very much surprised on reading Mr. Pettigrew's experience with foundations to think that he should have commenced in such a cart-before-the-horse style, by which no one could hope to succeed.—P. SKINNER, *Swanley*.

BRITISH BEE-KEEPERS' ASSOCIATION'S SHOW.

THE sixth annual Show of this Association is now being held at the Royal Horticultural Gardens, South Kensington, and will be continued until Tuesday, August 2nd. Our general analysis must be reserved until next issue; suffice it now to say that progress marks the whole Exhibition, while even those who are not novices in bee-keeping still wonder that so much room is found for ingenuity and inventiveness in winning the little busy bees into doing the will of their masters while they are made to believe they are doing their own. The exhibits of honey are large and beautiful, and when we remember the grand supers the Chairman of the Committee exhibited in 1874, and compare them with the quality of the exhibits of many even in the cottager class now, we are impressed with the fact that the Association has not existed in vain. It is not too much to say that the average of the sections of honey in the collection far surpass in quality and appearance the best of those sent to us across the Atlantic. The present year has been favourable for honey, and has clearly shown that our bee-keepers are rapidly learning not only how to manage bees so as to secure surplus, but also how to secure that surplus in the most inviting form. Foreign comb honey of course suffers in appearance in the transit; but even making allowance for this, we think the present Show proves conclusively that the home-grown article need fear no competition. The Hon. Secretary, the Rev. Herbert Peel, so organised the whole Show that everything fell into its proper place, and the bee tent with its displays and lectures is as attractive as ever.

The Conversazione was held on the evening of Tuesday in the conservatory, when the subject of the relations of bees to flowers was opened by Mr. Cheshire, who is also delivering a course of lectures on bees and bee-keeping at the gardens. The next lectures will take place at 3.30, on the afternoons of August 10th and 24th.

The following is the prize list:—

HIVES AND BEES.—For the Best Frame Hive.—1, W. Hunt. 2, W. Martin. For the Best Stock of Languan Bees.—1, S. J. Baldwin. 2, Neighbour & Son. For the Best Stock of Cyprian Bees.—1, Abbott Bros. For the Best Stock of other Foreign Bees.—1, Neighbour & Son. 2, Abbott Bros. For the Best Hive for Observation Purposes.—1, Abbott Bros. 2, R. Scott. For the Best Comb Hive.—1, Neighbour and Son. 2, Abbott Bros. 3, W. Hollands. c, J. Clapp. For the Best Frame Hive, Price not to exceed 15s.—1, Green & Sons. 2, J. M. Hooker. 3, S. J. Baldwin. c, W. Hollands. For the most Economical Hive, on the Movable Comb Principle, for Cottagers' use. Price not to exceed 10s. 6d.—1, Green & Sons. 2, R. McGregor. 3, W. Hollands. c, H. Parson. For the Best Straw Hive for Depriving Purposes, Price not to exceed 5s.—1, T. Sells. For the Best Supers for Harvesting Honey in the Comb in a Suitable Form.—1, Green & Sons. 2, J. M. Hooker. 3, J. Clapp.

HONEY.—For the Best Exhibition of Super Honey from one Apiary.—1, W. E. Warren. 2, S. Thorne. 3, Rev. E. Bartrum. For the Best Super of Honey. The Super to be of Wood, Straw, or of Wood in combination with Glass or Straw.—1, S. Thorne. 2, W. E. Bacon. 3, W. H. Dunman. 4, Rev. E. Bartrum. 5 and c, Mrs. Leigh Spencer. For the Best Glass Super of Honey.—1, Rev. F. G. Jenyns. 2 and 3, W. Sells. 4, R. Scott. 5, W. E. Warren. For the Best Exhibition of Comb Honey in Sections, each not more than 3 lbs. in weight, the total weight of each entry not to be less than 20 lbs.—1, J. Thorne. 2, S. Thorne. 3, T. W. Cowan. 4, W. E. Warren. 5, W. H. Dunman. For the Best 10 Sections of Comb Honey, each Section weighing not more than 3 lbs.—1, S. Thorne. 2, Miss Gayton. 3, P. Skinner. Extra, F. Cheshire. For the Largest and Best Exhibition of Run or Extracted Honey in Glasses, not to exceed 2 lbs. each.—1, R. Scott. 2, F. H. Lemare. 3, S. Thorne. 4, W. Sells. c, J. Walton.

ENGLISH COMB FOUNDATION.—For the Best Sample of Comb Foundation (worker cells) made of pure Bees' Wax, not less than 10 lbs. in weight, manufactured in the United Kingdom, with price per pound attached.—1, W. Raitt.

COTTAGERS' CLASSES.—For the Largest and Best Exhibition of Comb Honey, the property of one Exhibitor, and gathered by his own Bees.—1, P. Skinner. 2, M. Freeman. 3, T. Sells. For the Best Super of Honey.—1, P. Skinner. 1, H. Ellingham. 3, M. Wood. 4, T. Sells. For the Largest and Best Exhibition of Comb Honey in Sections, each Section not to exceed 3 lbs. in weight.—1, P. Skinner. 2, W. Martin. 3, W. Hunt. 4, T. Sells. For the Best Exhibition of Run or Extracted Honey in small glass jars not to exceed 2 lbs. each; total weight of each entry not to be less than 10 lbs.—1, J. Walton. 2, P. Skinner. 3, M. Wood. 4, T. Sells.

FOREIGN AND COLONIAL CLASSES.—For the Best Exhibition of Run or Extracted Honey in glass jars, not to exceed 2 lbs. each.—2, Lucio Paglia. For the Best Sample of Comb Foundation.—Bronze Medals, Newman & Sons.

COMESTIBLES.—For the Best Mead or Metheglin made from Honey, with Recipe attached.—1, Abbott Bros. 2, R. Scott.

MISCELLANEOUS.—For the Best and Largest Collection of Hives and Bee Furniture. 1, Neighbour & Son. For the Best Honey Extractor.—1, T. W. Cowan. 2, J. Walton. 3, Abbott Bros. For the Finest Sample of pure Bees' Wax, not less than 3 lbs. in weight, produced by the Exhibitor's own Bees.—1, W. Hunt. 2, W. Sells. 3, J. M. Hooker. 4, Lucio Paglia. For any Invention for advancing the Culture of Bees.—Silver Medal, F. Cheshire. c, Green & Sons; T. W. Cowan; F. Cheshire. For the Best Microscopic Slides illustrating the Natural History of the Honey Bee.—Silver Medal, John J. Hunter. For the Best and Largest Display of British Bee Flora in a dried state or otherwise.—Silver Medal, W. Ingram. Bronze Medal, A. E. Gibbs. For the Best Set of Diagrams illustrating the Honey Bee.—Bronze Medal, Abbott Bros.

DRIVING COMPETITION.—1, J. Walton (4 min. 15 sec.). 2, J. Fillec (4 min 15 sec.). 3, W. Hunt (8 min. 35 sec.)

OUR LETTER BOX.

Fowls Diseased (M. F. G.).—You had better treat them as directed by Mr. Moffat as follows:—The head may be bathed with warm water, or milk and water, and carefully dried afterwards; warm but airy lodgings must be provided, and boiled potatoes or oatmeal made into paste with milk given for food; and occasionally a clove of garlic beat up with a little of the oatmeal paste and made into pills may be put down their throats. Keep the fowls infected separated from those not infected.

Cork (R. M.).—If the Pheasants peck out pieces of it we do not think any injury will occur to the birds.

Much Swarming (C. D.).—You have not had an unusual number of swarms out of your four hives. In many cottage gardens may be seen as many as twelve or more stocks at the end of a season where only three hives had survived the winter. Of course such swarming is much to be deprecated, as it necessarily involves a proportionate failure in the honey harvest. If you had put your swarms in the place of the parent hives you would probably now have only eight stocks instead of nine. Less than one swarm out of each hive you could hardly have expected. Giving supers will not prevent swarming. Bees will even swarm before they have filled the parent hive—we had an instance in our apiary this season. Your high-growing Peas are too near your hives, but we do not think they have anything to do with their swarming. As to "burning" your bees with sulphur, it is a barbarous plan and utterly unprofitable. Drive the bees out of the hive to be plundered and join them at night to a neighbour's stock.

Grubs in Hive (M. A.).—The specimens of grubs thrown out were duly received. The hive is not foul-broody, but is turning out drones in all stages, from the termination of the larval condition to the time of gnawing out. The causes may be either singly or in combination, shortness of provisions, excess of drone comb, or an old queen. Feed gently and the difficulty will cease, but the cause should be sought and removed.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1880.	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
July.		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun. 18	29.941	65.0	59.5	W.	62.0	75.1	57.2	122.0	55.0	
Mon. 19	30.005	64.4	59.0	N.W.	62.0	74.0	56.1	125.1	53.3	
Tues. 20	30.087	66.0	60.3	N.W.	62.1	76.4	54.0	132.0	51.2	
Wed. 21	30.070	64.5	60.7	N.	62.6	75.4	54.3	119.4	50.4	
Thurs. 22	29.995	59.0	57.2	E.S.E.	62.0	72.6	54.3	105.6	50.0	
Friday 23	30.000	66.9	58.0	S.W.	61.2	77.6	55.9	121.7	52.3	
Satur. 24	29.910	65.6	59.3	N.	62.0	76.2	56.0	126.9	52.9	
Means.	30.001	64.5	59.1		62.0	75.3	55.4	121.8	52.2	
									0.208	

REMARKS.

18th.—Fine day with bright sunshine in forenoon, slight shower 3.30 P.M., fine evening.

19th.—Fine bright breezy day; slight shower 1 P.M., brilliant evening.

20th.—Very fine bright day throughout; clear moonlight night.

21st.—Very dull, hazy, close, morning; bright for a short time at noon, but generally overcast; thunder occasionally from 3 P.M., heavy shower at 6.30 P.M., moonlight night.

22nd.—Very thick, damp, morning; afternoon fine; fair evening.

23rd.—Very fine bright day throughout.

24th.—Morning dull and overcast with short slight shower, fine afterwards.

Rather fine week, with very equable and somewhat higher temperatures. The extreme difference between the daily maxima was only 5° (72.6° to 77.6°), and between the daily minima it was even less, being only 3.2° (54.0° to 57.2°).—G. J. SYMONS.

COVENT GARDEN MARKET.—JULY 28.

SOFT fruit being now nearly over our market presents a less busy appearance, and prices remain with little or no alteration.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	2	6	4	6	Nectarines..	dozen	2	0	10	0
Apricots.....	box	1	0	2	6	Oranges	£ 100	4	0	12	0
Cherries.....	½ lb.	0	4	1	0	Peaches	dozen	3	0	10	0
Chestnuts.....	bushel	12	0	16	0	Pears, kitchen ..	dozen	0	0	0	0
Figs.....	dozen	2	0	4	0	dessert	dozen	0	0	0	0
Filberts.....	½ lb.	0	0	1	0	Pine Apples	½ lb.	1	0	2	0
Cobs.....	½ lb.	0	0	1	0	Plums	½ sieve	0	0	0	0
Gooseberries ..	½ sieve	2	6	4	0	Raspberries	½ lb.	0	3	0	6
Grapes	½ lb.	1	6	3	0	Strawberries ...	½ lb.	0	6	1	0
Lemons	£100	6	0	10	0	Walnuts	bushel	0	0	0	0
Melons	each	2	0	4	0	ditto	£ 100	0	0	0	0

VEGETABLES.

		s.	d.	s.	d.			s.	s.	d.
Artichokes.....	dozen	2	0	4	0	Mushrooms	dozen	1	0	16
Asparagms.....	bundle	0	0	0	0	Mustard & Cress ..	punnet	0	2	0
Beans, Kidney ...	½ lb.	0	6	0	9	Onions	bushel	3	6	5
Beet, Red	dozen	1	0	2	0	pickling	quart	0	0	9
Broccoli	bundle	0	9	1	6	Parsley..... doz.	bunches	6	0	0
Brussels Sprouts..	½ sieve	0	0	0	0	Parsnips	dozen	1	0	2
Cabbage	dozen	0	6	1	0	Peas	quart	0	10	1
Carrots.....	bunch	0	4	0	6	Potatoes	bushel	3	9	4
Capscums.....	£ 100	1	6	2	0	Kidney	bushel	4	0	0
Cauliflowers.....	dozen	0	0	3	6	Radishes.... doz.	bunches	1	6	2
Celery	bundle	1	6	2	0	Rhubarb	bundle	0	4	0
Coleworts.....doz.	bunches	2	0	4	0	Salsafy.....	bundle	1	0	0
Cucumbers.....	each	0	4	0	6	Scorzonera	bundle	1	6	0
Endive	dozen	1	0	2	0	Seakale	basket	0	0	0
Fennel	bunch	0	3	0	0	Shallots	½ lb.	0	3	0
Garlic	½ lb.	0	6	0	0	Spinach	bushel	3	0	0
Herbs	bunch	0	2	0	0	Turnips	bunch	0	4	0
Leeks.....	bunch	0	0	4	0	Vegetable Marrows	each	0	2	0



5th	TH	
6th	F	
7th	S	
8th	SUN	11TH SUNDAY AFTER TRINITY.
9th	M	(11 A.M. Shows at Weston-Super-Mare and Clay Cross.
10th	TU	Royal Horticultural Society Fruit and Floral Committees at
11th	W	Ramsgate Horticultural Show.

CULTURE OF DISA GRANDIFLORA.

KNOWING that the desire to grow *Disa grandiflora* well is much more widely spread than the success which attends the efforts of growers generally, it may interest some of your many readers to learn the mode of culture which produced the specimen mentioned on page 71. Indeed, some of the most eminent public Orchid growers in England have told me that they can make nothing of *Disa grandiflora*. This is all the more to be regretted, inasmuch as its culture is extremely easy, and no Orchid so amply repays by distinguished beauty and long lasting the pains which may be expended on it. I may mention for the encouragement of others that the plant which I showed in Dublin on the 8th inst., and that bore the very unusually large number of twelve spikes of bloom, was but three years ago a very small piece taken off with the finger and thumb from the parent plant. I shall endeavour to be as explicit as possible, as nothing is more vexatious to anyone seeking directions than to find that important particulars are omitted.

Time of Potting.—I repot or divide the plants in autumn, after the flower spikes have withered, and when the young growth is actively pushing up.

Potting Material.—I employ sound, not sour or soddened, sandy peat, torn into rough lumps, not sifted or made fine, and merely the strong roots picked out. I add a liberal supply of rather coarse silver sand. I also add during the act of potting small pieces of charcoal about half an inch square in size.

Mode of Potting.—Whatever be the sized pot, I place in fully the quarter of it broken crocks and some charcoal, taking pains to place the drainage carefully; then lumps of peat and pieces of charcoal pushed in here and there between them and at the sides of the pot. I then lay in the plant, and place some of the finer parts of the peat about it. I throw in some sand as the work proceeds, and add more lumpy peat and charcoal. When all is finished I surface with sand, which the first good watering from a rose washes quite in.

Situation for the Plant.—This is, indeed, one of the most important matters in the cultivation of *Disa*, or, for the matter of that, of any plant requiring especial treatment. I grow mine in a large, airy, and very lightsome greenhouse, but not in any part of the greenhouse. I have a shelf over the door leading into a vinery, separated from the greenhouse by a glass partition. Here the plant has plenty of light, and yet not the full blaze of the sun. It has abundance of air circulating about it, even in winter when the lantern roof is opened,

except in frost, and yet it has no draught, which I know it much dislikes. Cultivators of *Disa* must avoid the notion that it likes heat and closeness. In its natural habitat on Table Mountain it has neither.

After-treatment.—This may be said to consist simply in supplying abundance of water. The plant should not once suffer from receiving insufficient water, and growers must recollect that *Disa* grows naturally in swamps which are often unapproachable. But, at the same time, I must warn your readers against the pernicious practice of standing the pots in saucers of water. When the plant is growing strongly it may be frequently syringed with advantage, as it tends to keep down green fly, with which growers are sometimes troubled. I am happy to say I am not. When the flower spikes are pushing well up I give an occasional supply of liquid manure very weak, made from sheep droppings. After flowering and before repotting, the supply of water may be a little diminished, but the soil should never be allowed to become dry.

In simple truthfulness I must now disclaim any credit for originality in the system of culture which I have adopted. I first saw *Disa grandiflora* in luxuriant health and beauty at Glasnevin Botanic Gardens. Mr. Pope, the able and kindly foreman of the houses, gave me in few words the outline of his treatment, and all the credit which attaches to me is that of having intelligently carried out his directions. But still there is something in that, as he tells me that almost everyone else to whom he acted the same kind part completely failed. I really see no reason why anyone who cares for the plant, and is willing to give it the trifling attention it requires, should not have their conservatories and greenhouses brilliant with *Disas*, as those at Glasnevin now are, where blooming plants are to be seen by the dozen.—FREDERICK TYMONS, *Clk., Dublin.*

SCALDED GRAPES.

LET me repeat that the so-called scalded berries are not scalded at all, but the very opposite—they are chilled. A correspondent once told me that a similar effect would be produced by placing ether on the hand and allowing it to evaporate. Of the effect of ether I have no practical knowledge, but supposing the statement to be correct, that is much in the same way that Grapes are injured when they are said to be scalded. A house need not become very hot to bring about the mischief; it might happen, I believe, at as low a temperature as 60° in this way: Supposing the night to have been cold so as to have lowered the temperature of the house to 50°, the sun is bright in the morning and the thermometer indicates 60° before any ventilation is given (this might happen as early as 5.30 or 6 A.M.); much moisture will have condensed on all the cold surfaces, such as metal, slate, stone, and unfortunately on Grapes, stems and leaves as well, where, unless a circulation of air is obtained, it will remain till the substance becomes warmed. No great harm has actually happened when the moisture is sufficient to be visible in the shape of dew, unless it might be a slight injury to the bloom on the skin of the Grapes, but it ought not to happen, and can easily be prevented.

The injury is done by the general instinct to dispose of the moisture as quickly as possible, which impels us to open the ventilators at once to a considerable extent, and suddenly cause a great amount of evaporation. Let it be distinctly understood that all the evil is traceable to this rapid evaporation, that

scalding is a misnomer and has nothing whatever to do with it, and I think intelligent amateurs will see their way more clearly to preventing it if young gardeners do not. Rust on the skin of the berries and the so-called scorched shoots are produced in exactly the same way. Why all these evils are more common than usual this year is first because there has been much cloudy weather since May, and the growth consequently is not so well consolidated as it is when produced under a reasonable amount of sunshine; and secondly because, when the sun has shone, it has generally had that peculiar scorching power so often experienced before thunderstorms, and has been accompanied by such excessive evaporations that many of the kitchen garden crops, Brassicas especially, drooped to the ground as if they were about to die, although they were more than sufficiently moist at the root. This rapid drying is a sure sign of coming wet, and generally too I think of thunder.

So-called scalding can always be prevented by timely ventilation—i.e., in anticipation of a rise of temperature. It can also be prevented by having fire heat and air all night, but that is both an expensive and a lazy plan, and should not be encouraged when the summer temperature is up to the average. For amateurs who attend to their own houses and find it inconvenient to be out as early as five or six o'clock I would recommend a slight shading, which could be pulled down late at night, and drawn up half an hour or so after the ventilators have been opened in the morning. Whenever I find air-giving has been too long delayed I do it very gradually indeed, and rather at the bottom than the top of the house at first. A temporary shading at such times would be a great advantage, especially during the stoning period when Grapes are much more liable to injury than at other times.—WM. TAYLOR.

THE POTATO DISEASE.

THIS is again to the front, and Scotch Champions, Magnum Bonums, &c., are this year found not to be so free from disease as previously, or these so-called "disease-proof" Potatoes have deteriorated in vigour and robustness of constitution, and are not now proof against the influences which cause the disease. This downward course appears to be nearly the same with all new varieties, and according to Mr. Mayne Reid (*vide Live Stock Journal*, March 5th, 1880) even applies to the Mexican "papas." Such being the case, the question that presents itself is, What is the cause of this deterioration of constitution? In answering this question I would first inquire into one or two analogous things. To retain the full vigour of a particular variety of Broad Bean or Pea, would you keep the inferior pods for seed or the best? Now what is done in planting Potatoes? In many instances the inferior both in size and quality, in many more the medium, in a few instances the best and largest tubers, are selected when dug and are used for seed. This last is the only way that the constitutional vigour of the Potato can be retained, as will be patent to anyone who knows something of Nature's laws of reproduction and will consider the subject for a moment. It is quite unnecessary to enter into the subject of spores, manures, thunder, rain, &c., as these have been exhausted; the majority who write on the Potato disease seeming to search for the cause anywhere before questioning the tuber itself.

I have tested the plan of keeping the largest and best Potatoes for seed, and at planting cutting into sets with two eyes each on three sorts that were very badly diseased two years ago. The result last year was that I only had good Potatoes from those planted in this way. This year the improvement continues in size, quality, and quantity. To put my opinion in a nutshell it is this: If we want hardy vigorous-constituted Potatoes we must be guided by Nature's law of selecting the fittest to produce from, which law is exemplified in all classes of the animal and vegetable kingdom.—W. B. W.

I DO not think there is anything mysterious about the disease attacking the Scotch Champions in the way referred to in last week's Journal. It is only what may be expected in the ordinary course of events. No Potatoes up to the present time, although some are properly called disease-resisting, are absolutely free from the attacks of the malady; nevertheless, I think that by care and attention to the raising of new seedlings some may eventually reach that stage of perfection.

The seed tubers last year were in a frightfully contaminated state nearly all over the country, and the statement that those planted by "G. R. B." were perfectly free from taint must be

received cautiously. It would require a very careful investigation and examination of witnesses to convince me that they were so. I feel sure the Editors are right in attributing the disease in the case referred to, to the old set. I would advise "G. R. B." not to be in too great a hurry to lift his crop of Champions. Let him proceed to the field with a fork and try half a dozen roots, and if the disease has only extended to the tubers in a comparatively few cases I should wait a few days for the chance of better weather, but if the case is really more serious than I anticipate there is no time to be lost. I have about three-quarters of an acre of Potatoes close to my residence, which I watch every day, and I have only met with three or four instances in which the disease could be attributed to the old set. Cases of that kind are not nearly as numerous as usual, thanks to the dry cold weather prevailing in the early part of the season. Since the heavy rains (about 7 inches), last month the leaves of the Potatoes have become spotted almost universally here, but the fungus does not progress on Magnum Bonum, Reading Abbey, &c., at anything like the rate it does on other varieties.

I have capital crops of original Ashleaf, Royal Ashleaf, and early Rose free from disease, and other people ought to have the same. About one-half of the losses by the disease arises from the want of knowledge and apathy on the part of the growers.—THE WRITER OF "THE POTATO DISEASE AND HOW TO PREVENT IT."

WE have this year an abundant crop of Potatoes—is it to be lost or saved? To-day I have finished lifting the second early Potatoes—i.e., Early Rose, Snowball, Snowflake, Brinkworth's Improved Snowflake, and Schoolmaster, all a heavy crop of magnificent tubers, quite sound and without a blemish, save some broken skins, which Dame Nature will soon set right. There are nearly forty sacks of them stored in open cribs as thinly as space would admit; and this impels me once more to urge everybody not to lose a day after the growth of the tubers ceases, but to lift and store them before disease attacks the haulm, which it will probably do with unusual promptitude and virulence owing to the frequency of heavy showers of rain. The rain on the 30th of July was so general and so heavy as to cause a sensible diminution of temperature on the following day. All the week we have had unsettled weather, and it was only by taking advantage of every interval of fine weather that the second stage of Potatolifting has been brought to so satisfactory a conclusion.

I may explain that the process of planting the Potato crop has for many years been divided into three distinct stages—the early varieties taken up some weeks ago; the intermediate or second early, just finished; and the late, to come in about a fortnight. "Lift as soon as growth ceases in the tubers," is the rule applied in turn to each section, and under tolerably favourable conditions of weather it is invariably applied successfully. The late varieties which I have under cultivation this year are Victoria, Dunbar Regent, Scotch Champion, Magnum Bonum, and Brinkworth's Challenge. All are looking well, the haulm being unusually strong and the tubers rather more than half grown. The showery weather which now prevails, while it brings disease into the intermediate sorts, is actually beneficial to these later varieties, tending to promote vigorous growth in tuber and haulm in the happiest manner, for experience shows that unchecked growth is of vital importance in the production of a full crop.—EDWARD LUCKHURST.

THE BEST ROSES.

THE "Journal des Roses" gives the result of a general appeal to the Rose-growing world of France for a list of the best Roses. The result is most interesting. To my mind they very greatly appreciate where our English electors have as yet failed to appreciate. While they (the French) profess to regard with tender feelings such varieties as Paul Neyron, Baronne Prevost, and Eugène Appert, we in England, whilst regarding these varieties with qualified satisfaction, consider Marie Baumann, Etienne Levet, Madame la Baronne de Rothschild, Marie Finger, François Michelon, Marie Rady, Sénateur Vaisse, Mons. E. Y. Teas, Souvenir d'Elise, &c., worthy of a place among the first fifty; but the French do not. Has the climate anything to do with the remarkable difference of opinion as existing between English and French Rose-growers? Out of our list of seventy-two best exhibition Roses the verdict of France pronounces for seventeen only as belonging to the class "the best Roses."

Let me now give some of the names high in merit in France. Baron A. de Rothschild (second only to La France), Jules Margottin (sixth), Charles Margottin, Souvenir de la Reine d'Angleterre, Madame Boll, Louise Odier, Elizabeth Vigneron, Géant des Batailles, Elize Boëlle, and Empereur de Maroc. Surely with regard

to only vigour and habit we must claim to be better judges than the French, for the habit of very many of the best of our exhibition Roses is nearly perfect.—J. A. W.

LIVERPOOL HORTICULTURAL ASSOCIATION'S SHOW.—JULY 31ST.

FAVoured with a fine day after several weeks of rain, the second Show of this Association opened under pleasant auspices. The Show last year was an excellent one, but the Exhibition under notice was much superior. Specimen plants were of unusual merit, local exhibitors giving abundant evidence of their skill as cultivators. Fruit was plentiful and of great excellence, black Grapes being splendid; cut flowers very good, and vegetables admirable. Five very large marquees were quite filled round three sides of a square in the beautiful Sefton Park, the horticultural structures, &c., occupying the fourth side, the whole having a very imposing appearance. The tent devoted to specimen plants arranged on the ground down the centre, with Roses on the tables on one side and bouquets, &c., on the other, had a rich effect; such plants as *Ixoras*, *Allamandas*, *Bougainvilleas*, &c., with huge and highly coloured *Crotons*, appearing to great advantage amongst the grand Palms and fine Ferns. *Fuchsias* occupied gracefully the centre of the fruit tent. Tuberous *Begonias* were large and brilliantly laden with flowers, the finest display we have seen in competition. Zonal *Pelargoniums*, fresh and good, imparted brightness to the tent in which they were arranged; and *Coleuses* were 6 feet in diameter, close, and of excellent form and colour. The Exhibition was opened by the Mayor, who delivered an appropriate and interesting address, and a very large and select company attended during the afternoon.

STOVE AND GREENHOUSE PLANTS.—In the open class for twelve specimens, six foliage and six flowering, three admirable groups were arranged; the first prize being well won by Messrs. E. Cole & Sons, Withington, with, among others, grand plants of *Kentia Forsteriana*, *Latania borbonica*, *Croton Weismanni*, *Cycas revoluta*, *Ixora Prince of Orange*, and *Erica Lindleyana*. The second-prize group, staged by Messrs. J. Caldwell & Sons, Knutsford, included a well-coloured *Croton variegatus*, a large *Areca Bauerii*, and beautifully flowered plant of *Bougainvillea glabra*. Mr. J. Cypher, Cbeltenham, was the only other exhibitor, and was adjudged the third prize. This group included a fine *Clerodendron Balfourianum*, well flowered plants of *Erica venosa*, and *Anthurium Schertzerianum*, a grand specimen of *Latania borbonica*, and a well-coloured *Croton majesticus*. Four exhibitors staged groups of six stove and greenhouse plants, the first prize being secured by F. R. Leyland, Esq. (F. Faulkner, gardener), with a very even lot, the most noticeable of which were the well-flowered specimens of *Vinca rosea* and *Allamanda Hendersonii*. Messrs. E. Cole & Sons secured the second prize. The best group of eight fine-foliaged plants was staged by Messrs. J. Caldwell & Sons, the second prize going to Mrs. Allison Johnson (R. Gibbon, gardener). The most noticeable plants in the premier group were *Zamia Lindleyi* and a large but rather weather-beaten *Cycas revoluta* in flower. Messrs. R. P. Kerr & Sons were the only exhibitors of six new *Crotons*, and were deservedly awarded the first prize for neat little specimens, *C. Prince of Wales*, *C. Baronne Rothschild*, *C. Bergmanni*, a large broad-leaved variety with beautiful creamy variegation; *Croton Evansianus*, and *C. Hawkerii*. The latter is a very distinct variety, of good habit, and broadly blotched with pale yellow. The same exhibitors also staged the only group of six *Dracaenas*, and were awarded the first prize. Of these *D. anerleyensis* and *D. Mrs. Wills* were the best.

The premier prize group of eight table plants was exhibited by J. H. Oakes, Esq., Alfreton, Derbyshire. These consisted of rather too tall plants of *Croton Weismanni*, *Aralia filicifolia*, *Croton picturatum*, *Calyptronoma Schwartzii*, *Dracena marginata*, and *Pandanus Veitchii*. Plants worthy of notice in the other competing groups were *Acalypha musaica*, *Aralia Veitchii*, *Cocos Weddelliana*, and *Croton Johannis*. The best eight exotic Ferns were exhibited by R. Rayner, Esq., Wavertree, among which the most striking were the excellent specimens of *Davallia Mooreana*, *Gleichenia dichotoma*, *Cibotium regale*, and *Cyathea dealbata*. W. E. Bateson, Esq. (H. H. Elliott, gardener), also staged well in this class, and secured the second prize for, among others, good examples of *Davallia Mooreana*, *Adiantum farleyense*, and *Cibotium princeps*.

Orchids were not shown in great numbers, nor of any very marked superiority. The best six exhibited by M. Sparke, Esq., consisted of *Grammatophyllum Ellisii*, *Saccolabium Blumei*, *Russellianum*, *Cattleya Dowiana* (very richly coloured), *Oncidium Wentworthianum*, *Disa grandiflora*, and *Saccolabium Blumei majus*. The best four were staged by Mr. T. Faulkner, and included a fine pot of *Miltonia spectabilis*. Mr. James Cypher also exhibited successfully.

The first prize for six *Fuchsias* was awarded to T. Drysdale, Esq. (G. Butler, gardener), Worsley Hill, for tall well-flowered pyramidal specimens of *Mrs. Marshall*, *Alpha*, *Rose of Castille*, *Weeping Beauty*, *Vainqueur de Puebla*, and *Venus de Medici*. W. Bowring, Esq.

(J. Hurst, gardener), Aigburth, also staged well in this class, and obtained the second prize. This exhibitor staged the best six Zonal *Pelargoniums*, of which the most noticeable were the specimens of *Madame Vaucher*, *Triumph*, *M. de Lesseps*, and *Madame Van Houtte*. Several other exhibitors staged exceedingly well in this class.

In the classes open only to residents within ten miles of Liverpool, some of the freshest and best specimens of both flowering plants were staged, the progress made by several growers being very marked indeed. The premier prize group of eight stove and greenhouse flowering plants belonging to C. W. Newman, Esq., and exhibited by W. Mease, comprised large and remarkably well-coloured specimens of *Croton interruptus*, *C. angustifolius*, *Alocasia macrorrhiza variegata*, *Maranta Veitchii*, a grand plant of *Begonia Vesuvius* fully 4 feet high and as much through, and fine well-flowered specimens of *Ixora amabilis*, *Allamanda Hendersonii*, and *Dipladenia Brearleyana*. The second-prize group, exhibited by R. Rayner, Esq., Wavertree, was but little inferior to the foregoing, and nothing could much surpass the beautiful specimens of *Croton angustifolius*, *Calamus ciliaris*, *Bougainvillea glabra*, *Gleichenia dichotoma*, and *Croton Disraelii*. Another excellent group, and which secured the third prize from F. W. Leyland, Esq., comprised a beautiful specimen of *Vinca alba* and a good *Gleichenia glaucescens*. H. Cosfield, Esq. (W. Blomley, gardener), and W. G. Bateson, Esq., also staged well in this class; beautifully flowered *Ixora coccinea* were included in each lot. The fine specimens of *Croton majesticus*, *Alocasia macrorrhiza variegata*, and *Alocasia Marshallii* were conspicuously good, and the premier prize group of six fine-foliaged plants, exhibited by R. Rayner, Esq. M. Sparke, Esq., likewise exhibited some good plants in this class. There was good competition in the classes for various single specimens, and the same may be said of the *Fuchsias*, *Pelargoniums*, and *Coleus*. R. Horsfall, Esq. (J. Stevenson, gardener) exhibited very fine specimens of the latter. The display of tuberous-rooted *Begonias* was unusually fine, notably the beautifully grown plants of *Emperor*, *Sedenii*, and *Kallista*, and a very fine seedling included in the premier prize group exhibited. E. Lawrence, Esq. (W. Wright, gardener), Aigburth. *Cockscombs* were well shown by L. Pilkington, Esq. (J. Moore, gardener), W. Mease, and others. The latter exhibitor also had the best pan of *Achimenes*. J. S. Cross, Esq. (S. Whitfield, gardener), secured the first prize for three Zonal *Pelargoniums* with remarkably grown and flowered specimens of *Lyon*, *John Gibbon*, and *Mary Pearson*; Mr. Wright being awarded the second prize for three but little inferior specimens. S. Cross, Esq., also secured the first prize for six varieties, staging in this instance good pyramidally-trained plants.

The silver cup offered for six stove and greenhouse plants was well won by that very successful exhibitor Mr. Mease with grand specimens similar in size and quality to those in the class for eight specimens.

ROSES.—The display was comparatively limited, the incessant rains for some weeks previous to the Show having done great injury to the expanding buds; yet some excellent stands were exhibited. In the principal open class for forty-eight triplets Messrs. Cranston added one more to their remarkable list of honours without any trouble, as they had no competitors. Some of their finest blooms were *La France*, *La Duchesse de Morny*, *Mrs. Jowitt*, a splendid Rose, having a general resemblance to *Marie Rady*, but brighter in colour and having much of the fragrance of the old Provins Cabbage Rose; *Etienne Levet*, *Annie Wood*, *Dr. Hooker*, very bright; *Mary Pochin*, very rich; and *Constantin Treiakoff*, splendid. The firm was in the same position in the class for thirty-six singles with fresh fine blooms, *Jean Sury* splendid; and *Abel Carrière*, *John Stuart Mill*, *Alfred Colomb*, and many others, very good. Messrs. James Dickson & Sons, Cbeater, followed rather closely with very full and fine blooms; they also staged still finer blooms in the class for eighteen Roses, *Comtesse d'Oxford* and *Souvenir de Victor Verdier*, grand; and *Mdlle. Annie Wood* and *Alfred Colomb* excellent, and secured the only prize (first) awarded. In the amateurs' class, T. B. Hall, Esq., Larchwood, Rock Ferry, secured the first position with twenty-four single blooms, small, but very fresh; T. Griffiths, Esq., Birkenhead, being second with generally larger flowers. We understood the points were equal for these stands, a casting point being awarded to the flower for general freshness. H. Thompson, Esq., Aigburth, (Mr. Savin, gardener), was third, but the blooms were pressed much too deeply in the moss. For two blooms, W. Just, Esq. (Mr. McMaster), Eastham, was an excellent first with excellent blooms admirably set up; T. Griffiths, Esq., being a good second, and T. B. Bull, Esq., third; an extra third being deservedly adjudged to C. P. Newman, Esq., Allerton (Mr. Mease, gardener). An extra prize was awarded to Messrs. Cranston & Co. for an extensive miscellaneous collection, and a first-class certificate was granted to them for the fine Rose *Mrs. Jowitt*, above described. Messrs. Dickson & Robinson, Old Millgate, Manchester, also exhibited standards of large full blooms, but much injured by the heavy rains.

CUT FLOWERS.—For a collection of twenty-four varieties Messrs. James Dickson & Sons were first with a splendid stand, in which *Dahlia Cervantesii*, *Coreopsis grandiflora*, *Centaurea Cyanus* major, and *Lilium puberulum* shone conspicuously. E. W. Newman, Esq. (Mr. Mease), was a very close second; and C. Harvey, Esq. (Mr. Bostock), an excellent third. For stands of twelve flowers F. R. Leyland, Esq. (Mr. Faulkner), was an easy first with fine trusses, and Mr. Bostock third.

For eighteen varieties of stove and greenhouse flowers Mr. Faulkner won the chief position with a splendid collection, including Ixoras, Allamandas, Lapagerias, Hæmanthus Mannii, Orchids, and Kalosanthes, fresh and fine. Mr. Mease was a close second with a superior stand; and Henry Crossfield, Esq. (gardener, Mr. Blomily), an excellent third.

Bouquets.—In the open class for a bridal bouquet that skilful floral manipulator, Mr. James Cypher of Cheltenham, was in the premier position with a most tasteful arrangement of Eucharises, white Lapagerias, Tuberoses, and one or two white Tea Rose buds, from which rose in semi-drooping elegance small flowers of the old double white Primula; a few sprays of *Panicum variegatum* and Maidenhair Fern lightly used completed the arrangement. Messrs. Cranston & Co. were second with a smaller but very fresh and clean bouquet; Messrs. Jones, Princess Road, and Blomily being very close equal thirds. For two hand bouquets Mr. Cypher was again first, a few Ixoras and pink Ericas being associated with the white flowers; Mr. Blomily being a very close second; and Mr. Bodsworth, Stonehouse, Allerton, an excellent third. An extra prize was awarded to Messrs. Cranston & Co. for a rich and elegant arrangement of crimson, white, and yellow half-opened Roses. In the amateurs' class for a hand bouquet J. E. Reynolds, Esq., West Derby (gardener, Mr. Wilson), secured the premier position with a free and rich arrangement of Cattleyas, Lælias, Miltonias, and white Lapagerias; Mr. Bodsworth being second; Mr. Evans, gardener to Mrs. Lockett, Aigburth, and Mr. Hughes, gardener to R. J. Moran, Esq., Allerton, being equal thirds, all with highly creditable examples. The bouquets were numerous, and on the whole excellent.

GROUPS.—In the class for fifty miscellaneous plants arranged for effect Messrs. B. Kerr & Son secured the first prize with a splendid collection of choice and well-cultivated examples well arranged. Especially fine were *Anthurium Warroqueanum* and *A. crystallinum*, Crotons, and *Dracænas* were well coloured, healthy Ferns and Palms, and elegant Humeas. Messrs. F. & A. Dickson & Sons were second, and W. H. Walter, Esq. (Mr. Cox, gardener), third, but the groups were thin. It would be far better to stipulate space, and permit exhibitors to occupy it artistically with as many plants as they pleased, than to limit them to any given number.

Nurserymen's Miscellaneous Plants.—A large tent was devoted to these, and very beautiful was the effect that was produced. Messrs. F. & A. Dickson & Sons, Chester, exhibited a very large and fine group of Conifers, which included all the choice varieties of Junipers, Cupressuses, Retinosporas, &c., in admirable condition; *Olearia Haasti* was highly effective in this group, which also contained stands of good Roses. Mr. Cowan, The Vineyard, Garston, exhibited Vines in pots grown from eyes this year, remarkable for their strong healthy appearance and firm short-jointed wood; some last year's Vines were bearing heavy crops of fine fruit, and attracted much attention for their excellence. Mr. Cowan had also a very large collection of well-grown decorative fine-foliaged plants of various sizes and in great variety. Messrs. W. G. Caldwell & Sons, Knutsford, occupied effectively a great length of table with small but very choice Conifers in variety, and an excellent assortment of table plants, very fresh and clean. Messrs. R. P. Kerr & Sons, Aigburth, arranged a collection of great merit and magnitude, foliage plants fresh and clean, and flowering plants bright. *Lilium speciosum corymbosum*, a permanently fasciated form, producing a fine corona of flowers, and M. Lemoine's new decorative show *Pelargonium* Lucie Lemoine, pure white, Petunia-shaped; and others were greatly admired in this group; and also were new Zonals by the same raiser, and the brilliantly coloured Crotons. The old *Humea elegans* was admirably cultivated, and Gloire de Dijon Roses worked this year on the seedling Briar were 10 feet high and altogether fine.

MISCELLANEOUS.—Conspicuous amongst the horticultural structures was an elaborate exhibition of wirework from Mr. J. Bramham, Liverpool. The "Rose Temple" was beautiful in design and execution, and would form an elegant adjunct to a flower garden or pleasure ground; stands, baskets, &c., were also included. Mr. Bramham also exhibited his boilers, showing them as set, which are much approved in the several gardens where they are in use. Mr. Halliday, Middleton, Manchester, had a very fine span-roofed house combining strength with lightness and efficient ventilation; he also exhibited useful garden frames of different forms and sizes. Mr. Webster, Wavertree, had a durable well built and excellently ventilated span-roof house with a lantern roof; also good frames. Mr. Beattie, Knotty Ash, had a small compact and strong greenhouse, well adapted for plant culture. Messrs. Foster & Pearson, Beeston, exhibited a superior span-roofed house, the same as the one that was so highly approved at South Kensington; also their silver medal frame with the "catch" ventilation, an advisable garden appliance both in the span-roofed and lean-to form; they had also their excellent throttle valves that are now largely used; and Mr. C. Kneale, ironmonger, had a large display of boilers of various types, and other appliances for the garden and household. A Fern case, exhibited by Mr. F. Roberts, gardener to W. D. Holt, Esq., attracted much attention. The Ferns have been preserved by a chemical process, and could scarcely be distinguished from growing specimens. An extra prize was awarded.

FRUIT.

The Fruit on the whole in the various classes was of unexceptionable quality, and better examples could not have been brought

together. The entries were numerous, and the show of fruit was very large, every prize being well contested. Seldom have Grapes been exhibited in better condition either as regards size of berry or finish generally. No better proof is needed of the quality and condition of the exhibits when such an excellent exhibitor as Mr. Coleman failed to gain a high position in the Grape classes, local growers securing the chief prizes. The Black Hamburgs shown by Mr. T. Washington, Rock Ferry, and Mr. J. Barker were wonderful examples, and the Muscat of Alexandria shown by Mr. Elsworthy and Mr. Mease were really magnificent. In the open class for eight dishes of fruit, not more than two varieties of Grapes, Earl Somers, Eastnor Castle (Mr. Coleman), was first with a fine collection including Muscat of Alexandria and Black Hamburg Grapes, Elrue Nectarines, good Queen Pine, Jefferson's Plum, Bellegarde Peaches, large and very fine in colour; Melon Victory of Bath, and good Brown Turkey Figs. J. H. Oakes, Esq., Alfreton (Mr. Jos. Ward), was a good second, and only a very few points behind the first-prize fruit with good examples of Madresfield Court and fair Muscat of Alexandria Grapes, Elrue and Pitmaston Nectarines, Jefferson Plum, good Brown Turkey Figs, and Melon Colston Basset, and a Queen Pine. R. E. Naylor, Esq., Hooton Hall, Cheshire (gardener, Mr. Hanagan) was third. In this collection Golden Champion was shown well without spot and large in the berry; Pitmaston Orange Nectarine and Royal Charlotte Peaches were large and good. In the class for two Pine Apples J. R. Leyland, Esq., Woolton Hall (Mr. Faulkner), was first with two good Queen Pines, weighing respectively 3 lbs. 11 ozs. and 3 lbs. 8 ozs. Second, Mr. Ward with good Queens. Another pair was also staged by Viscount Hill, Hawkstone (gardener, Mr. Pratt), which was of large size but rather under-ripe. For four bunches of Grapes, J. Just, Esq., Eastham, was first (gardener, Mr. S. McMaster) with superior well finished examples of Lady Downe's, Buckland Sweetwater, a beautiful colour; Foster's Seedling, and a large bunch of Alicante. R. C. Naylor, Esq., second with Golden Champion, Madresfield Court. Mrs. Pince, very good; and Foster's Seedling. For two bunches of Black Hamburg eleven collections were staged, and all the examples were highly meritorious. First, J. Johns, Esq., Rock Ferry (gardener, Mr. J. Washington), with the Frankenthal variety of Hamburg, very fine. Second A. Raynes, Esq., Rock Ferry (gardener, Mr. J. Barker). Third Mr. Coleman. J. G. Patterson, Esq. (gardener, Mr. T. Fergusson), also staged fine bunches in this class. For two bunches of Muscat of Alexandria, A. R. Gladstone, Esq., Court Hey, Liverpool (gardener, Mr. J. Elsworthy), was first with good well-coloured bunches. J. Fielden, Esq., Tadcaster (gardener, Mr. H. J. Clayton), second with good bunches and berries not quite so well coloured. Third Mr. Jos. Ward. One dish of Peaches (six fruits), Mr. Coleman first with grand Bellegarde Peaches. Second, Mrs. Horsfall, Rugeley (gardener, Mr. G. Morral), with Barrington. Third, Mr. J. Miller, Sedgley Hall, Prestwich. The competition was keen, and ten collections were staged. One dish of Nectarines—first, Sir J. Earle, Liverpool (gardener, Mr. A. K. Keen), with well-coloured large fruits of Downton Nectarine. Second, Mr. Morral with Pine Apples. Third, Mr. Hanagan with Pitmaston Orange. Eight entries. For six dishes of hardy fruits the prizetakers were Messrs. Mease, Pratt, and H. Elliott, New Heys, in the order named.

In the corresponding local amateurs' classes, for collection of fruit, six dishes, Pines excluded, Mr. Fergusson staged a very neat lot, and was awarded the first prize for Melon Munro's Little Heath, Vicomtesse Hericart de Thury Strawberry, Pitmaston Orange Nectarines, Bellegarde Peaches, and good Black Hamburg and Muscat of Alexandria Grapes. Mr. Elsworthy was a good second with the same varieties of Grapes and Peaches, Melon Dickson's Exquisite, May Duke Cherry, and Pine Apple Nectarine. Third, Mr. Hanagan, with good Madresfield Court and Muscat Grapes, Royal Charlotte Peaches, and British Queen Strawberry. Five collections were staged. For two bunches of black Grapes—first, R. Anderson, Esq., Tranmere (gardener, Mr. Metcalf), with Black Hamburg, fair-sized bunches, large in the berry, and well finished. The competition was very close, and ten lots were staged. Second, J. Barker with well-finished Madresfield Court. Third, Mr. Fergusson with Black Hamburg, very large in the berry. For two bunches of white Grapes there were six entries; Mr. Mease secured the premier award with the best bunch of Muscats in the Show, the berries being exceptionally large. Second, Mr. Fergusson; third, Mr. Elsworthy. For one Pine Apple.—First, Mr. Faulkner with a Queen 4 lbs. 4 ozs. Second, J. Reynolds, Esq., Sandsfield Park, West Derby (gardener, T. Wilson). Third, Mrs. A. Johnson (gardener, Mr. Cubbon). For one dish of Peaches there were nine exhibitors, Mrs. Lockett, Aigburth (gardener, W. Evans), first with Violette Hâtive. Second, W. D. Holt, Esq., West Derby (Mr. Roberts), with Bellegarde. Third, A. K. Keen with Royal George. For one dish of Nectarines.—First, Mr. Hanagan with Pitmaston Orange; second, W. Evans with Pine Apple; third, R. Horsfall, Esq., Aigburth (gardener, T. Stephenson), with Downton Nectarines. The silver cup for the special fruit prize for eight dishes of fruit was given by F. & S. Mee, Wood Street, Liverpool; there were four entries, and Mr. Mease again came to the front and was awarded the cup. Mr. Elsworthy and Mr. F. Faulkner also showed well in the first-prize collection. The bunch of Muscat of Alexandria was exceptionally large in the berry.

VEGETABLES.

These were numerous in quantity and shown in good condition

generally, especially the collection staged by Mr. Iggulden, Orsett Hall, Romford, which far exceeded any other for freshness and quality. Although local exhibitors came to the front in many plant and fruit classes, the vegetables grown in the neighbourhood did not reach that high quality those from the south possessed. In the open class for the best collection of twelve dishes, first R. B. Wingfield Baker, Esq. (gardener, Mr. W. Iggulden), with neat examples of White Globe Tripoli Onions, Egyptian-rooted Beet, Walcheren Cauliflower, Green Globe Artichoke, Sutton's Snowball Turnip, Monster Negro French Beans, a brace of a seedling Cucumber, Snowflake Potatoes, Culverwell's Telegraph Pea, Vegetable Marrow, and fine even Tomatoes of Hathaway's Excelsior, and Nantes Horn Carrots. The second award was obtained by Mr. J. Richardson, Boston, Lincolnshire, with a moderately good collection. Third, Lord Wimbourne, Canford Manor (Mr. Wm. Hinds), with very large Tripoli Onions and a splendid dish of Hind's Improved Tomatoes. The Cauliflowers in this collection were rather too large. Seven collections were staged. With four dishes of Peas Mr. J. Richardson, Boston, was first with Ne Plus Ultra, Commander-in-Chief, Imperial, and Dr. McLean. Mr. Iggulden was second with Culverwell's Telegraph, Carters' Telephone, Carters' Stratagem, and Carters' Challenger. Mr. Mease followed, eight collections being staged. In the class for six dishes of Potatoes Mr. Iggulden was first with fine examples of Porter's Excelsior, Beauty of Kent, Ashleaf Fluke, Extra Early Vermont, Snowflake, and Schoolmaster. Messrs. J. Richardson and Hanagan were second and third. In the local class for twelve dishes of vegetables Mr. Mease was placed first with fresh examples. Mr. Elliott; R. Horsfall, Esq., Grassendale Priory (Mr. C. Stephenson), taking the remaining prizes in the order named. In the class for a dish of Tomatoes good examples were staged by Mr. Mease, Mr. Faulkner, and Mr. Hall. Fifteen dishes were staged.

In this report no attempt has been made to refer to every prize-taker or even every class. The leading features of the display and the principal exhibits have been described, and an idea of the magnitude of the Show may be formed. It was unquestionably one of the finest of the year, and if the citizens of Liverpool give the support which the Society deserves still greater success will be achieved. The Show is wholly managed by gardeners, Mr. Richardson the curator of the Botanic Gardens being the able Chairman of the Committee, and Mr. Bardney Vice-Chairman.

A BEC PEACH.

FROM the general absence of the name of this variety in discussions on the Peach it is reasonable to suppose that A Bec is not widely known. The Rev. W. F. Radclyffe, Mr. Luckhurst, Mr. Wm. Taylor, and other writers have often spoken approvingly of several Peaches, and no doubt with good reason, but I do not remember their according a line to the one under notice. If they do not possess it I think they may well add it to their collections, while if they have it and yet do not consider it worthy of notice, it would be interesting to know the reason why. In my experience it is one of the finest Peaches in cultivation, the fruit being large, of good colour, and excellent quality. The tree is a good grower and bearer, at any rate under glass, not forced but merely sheltered; but of its adaptability for open walls I am not able to adduce any testimony. I observe that it has figured prominently this year on exhibition tables, and we are informed that Mr. Coleman exhibited it in grand condition at South Kensington. This confirms my testimony of the value of this Peach, which I think is worthy of more extended cultivation. As many cultivators may not be acquainted with A Bec, it may be useful to append the description from Dr. Hogg's "Fruit Manual":—"Fruit large, roundish, uneven in its outline, terminating at the apex in a bold blunt nipple, and marked with a shallow suture, which is higher on one side. Skin remarkably thin and tender, of a lemon-yellow colour, with crimson dots on the shaded side, but covered with a crimson cheek and darker dots of the same colour on the side exposed to the sun. Flesh white, with a very slight tinge of red next the stone, from which it separates very freely; remarkably tender and melting, sweet, and with somewhat of a Strawberry flavour. Flowers large. Leaves with round glands. This is a very fine and early Peach. It ripens in the third week of August. It originated at Ecully, near Lyons."

This description is very precise except that the nipple is not always bold; on some fruits it is very marked, but on others it is scarcely discernible. I have seen some very large fruits without this characteristic, while smaller examples on the same tree with a decidedly bluntly pointed apex. I esteem it one of the largest and finest of Peaches, and quite worthy of honourable mention in the columns of the Journal.—J. W. B.

SOWING ANEMONE SEED.—As a constant bloomer, quite hardy, and as a spring decorative flower, or for cutting purposes, there are very few to compare with Anemones in variety, especially *A. coronaria*. The present moist weather is an excellent time for sowing

seed. If anything is to be particularly guarded against it is sowing the seed on a raised dry bed, where the young seedlings run the risk of being scorched up. The fine fleshy filamentary rootlets are hopelessly ruined; at least they sustain a check that is not afterwards overcome by any amount of care. I prefer sowing in a rather deep box that can be afterwards fully exposed under the shade of a hedge or of trees, dividing the box or boxes into compartments for each variety. I gather my seed from selected plants, and never have failure in this way, and, as often mentioned in the Journal, I have splendid flowers.—W. J. M., *Clonmel*.

RIDGWAY'S GRASS CUTTER.

THIS is as good an implement for cutting grass as the hedge clipper is for trimming hedges, and that is saying a great deal. It is a marvellously handy tool, and will be most useful to persons

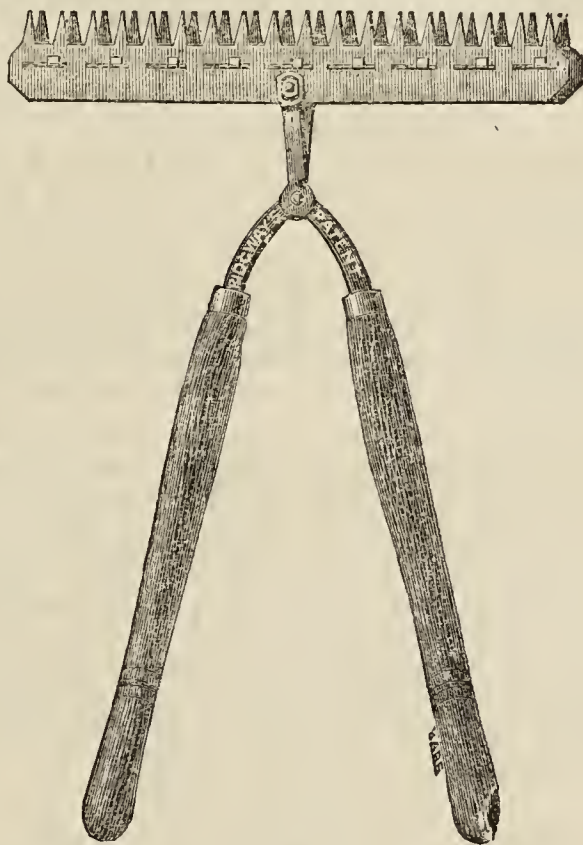


Fig. 25.

whose lawn is too small for them to hire a man to mow it, or to purchase a lawn mower for that purpose. It will also be very useful in large gardens for cutting grass verges and the scrollwork in geometric flower gardens, as well as for clearing those spots which the lawn mower cannot reach.

WESTERN HORTICULTURAL SOCIETY.

JULY 28TH, 29TH, 30TH.

THE summer Exhibition of this Society was a fairly good one; the schedule of prizes was most comprehensive, but the date fixed was not exactly suitable, as special inducements were offered for Dahlias, Gladioli, Asters, and Balsams, most of which were not well represented. Fruit and vegetables were well and numerous exhibited.

Plants.—In the class for twenty varieties of stove and greenhouse plants there was only one exhibitor—H. B. Mildmay, Esq., Flete, (gardener, Mr. Salway), to whom was awarded the first prize of £15 for a very creditable collection. Mr. Salway also exhibited the best group of plants on a stand 10 feet by 10. These collections or groups are always highly attractive at Plymouth. The Earl Mount Edgcombe (Mr. Brighton) took the second prize in this class, while Admiral Carme, Devonport, and Mr. P. Bluett were first and second respectively with smaller groups 7 feet by 7. Of six plants suitable for table decoration there were four collections, all of which were remarkably clean and even. Mr. Salway, sen., was placed first: E. C. Baring, Esq., Membrand Hall (Mr. Salway, jun.), second; and the Earl of Devon third. Several admirable collections of Cockscombs and Balsams were staged, the first-named being particularly fine. Zonal Pelargoniums and Petunias were also numerous.

Ferns were splendidly exhibited, the premier collection of twelve varieties was remarkably fresh. These were from the gardens of S. Hurrell, Esq., Kingsbridge Road. Mr. Salway was a very good second, and the Earl Mount Edgcombe third. Messrs. Lucombe, Pince, & Co. exhibited two very fine collections of stove and greenhouse plants, which indicated the vast wealth of their nurseries at Exeter.

Cut Flowers.—Notwithstanding the early date for Dahlias there

were several very good collections set up by Messrs. Kemp, Radmore, Whitmore, and Bluctt, who were the principal prizetakers in the classes for twenty-four, eighteen, and twelve. Roses were fairly represented. Messrs. Curtis, Sanford & Co., Torquay, were first in the class for forty-eight distinct and also in the class for twelve; Miss Christy, Coombe Bank, Kingston-on-Thames (Mr. Moorman), was second, and Mr. Mitchell third.

Fruit was numerously represented. The Earl of Devon exhibited the best Grapes, well coloured and finished. Peaches from the gardens of the Earls St. Germans and Mount Edgcombe. A very fine Queen Pine was exhibited by Mr. Allen, Ivybridge, who was worthily awarded the first prize, the Earl of Devon the second. The bush fruit exhibited was numerous and fine.

Vegetables.—These occupied a table the whole of the length of the hall, and in many of the classes there were twenty competitors. Potatoes large, bright, and clean; Carrots and Turnips were similar.

The Exhibition this year was held in the new Guildhall, Plymouth, a most suitable place for such a display. The Show was well managed, and we congratulate the executive on their success.

WHITE EAST LOTHIAN STOCKS AND DOUBLE TUBEROSES.

WHAT magnificent plants the white East Lothian Stocks are in early summer for various purposes—the adornment of the garden, for cutting, for bouquets, &c. I send you a plant which is no more than an average one from an early batch of this year's seed-sowing. I could, had I not cut some of them, found a much better sample. The flowering shoots were much broken by the heavy rains recently. I think they are not sufficiently appreciated—that is, their beauty and usefulness when well grown does not seem to be considered, or we should see them more generally cultivated.

Amongst choice white flowers perhaps there is not a more general favourite than the double Tuberose. Certainly the plant itself is not especially attractive, but those who have to maintain a supply of choice flowers will find the pure white exquisitely fragrant blooms of great value. I had yesterday a scape bearing no less than a dozen fine flowers. I have not had great experience in Tuberose culture, but I do not recollect having one with a dozen flowers open at one time before.—R. M. A.

[The plant of East Lothian Stock we received was a very fine specimen, bearing nearly twenty dense racemes of fragrant white double flowers. The double Tuberose was also exceptionally beautiful, the individual flowers being of good form, and the fragrance most pleasing and powerful.—EDS.]

LEEDS HORTICULTURAL SOCIETY. SUPPLEMENTARY SHOW.

IN consequence of the loss arising from the fine Show in June owing to a deluge of rain the Committee, having collected £200, resolved on another venture in the hope of reimbursing their finances; hence they attempted another Show with other attractions for ensuring a large attendance of visitors. The Show was comparatively small, many who had entered failing to fulfil their engagements. The weather was fine until the afternoon, when drenching showers fell, and it is somewhat doubtful if the object of the industrious Committee will be attained.

The bouquets were the finest feature of the Show. The special prize of two guineas offered by Mr. Boston, fruiterer, Boar Lane, Leeds, for the best ball bouquet was won by Mr. Featherston, St. Ann's Nursery, Leeds, for a highly finished arrangement free and chaste of *Panratiums*, *Bouvardias*, white *Lapagerias*, Tea Rose buds, *Tuberoses*, and a spray of Orange blossom and a few nodding flowers of *Rhodanthes*; Mr. Wright's bouquet being highly commended. A similar prize for the ball bouquet was won by Mr. Wright, gardener to Grosvenor Talbot, Esq., Southfield, Burley, Leeds, for one of the most beautiful bouquets we have ever seen exhibited, brightness, freshness, and freedom being combined in a very marked manner. The flowers employed were *Panratiums*, *Lælias*, *Miltonias*, red *Bouvardias*, *Stephanotis*, and a spray or two of *Oncidiums*. The Society's prizes for ball bouquets were won by Mr. Frankland, gardener to J. Barran, Esq., M.P., Chapel Allerton Hall, Mr. C. Rylance, Ormskirk, and Mr. Wright in the order named. Splendid white *Lapagerias* predominated in the first-prize arrangement, with *Tuberoses*, *Panratiums*, and *Stephanotis*. It was rather small, but very clean and free. In the corresponding class for ball bouquets Mr. Wright, Mr. Featherstone, and Mr. Rylance secured the prizes in the order named in a very close and excellent competition.

There was a moderate display of fruit. Mr. Clayton, Grimston Park, was placed first with a grand collection of fruit—two varieties of Grapes, Peaches, Nectarines, a Pine, and Little Heath Melon, weighing 9 lbs.; Mr. Clark, Studley Royal, following, Golden Champion Grapes being very fine. Mr. Clark was first in the class for four dishes. For two dishes of Grapes the prizes went to J. Padgett, Esq., Guiseley (Mr. Thompson, gardener); Geo. Gelder, Esq., Headingley (Mr. Tuke). J. Hardy, Esq., Grantham (gardener, Mr.

Goddard), was first with black Grapes, with admirable examples of Black Hamburg; and the first prize for white Grapes was won by Mr. J. Stevenson, The Gardens, Farfield House, Armley, with large bunches of Foster's Seedling. Mr. Clayton was first with a Pine, Mr. Clark with Peaches (good), and Mr. Goddard with Nectarines. Several good dishes of small fruit were staged. Mr. E. P. Dixon, Hull, sent a very fine dish of a seedling Raspberry, which was highly commended for its size and high quality.

Plants call for little notice. In the 200 feet group Mr. Featherstone was an excellent first with a free and bright collection; J. Barran, Esq. (Mr. Frankland), a good second; and Mr. Simpson, New Lane, Selby, third. The smaller groups do not demand notice. Mr. Barran staged the best fine-foliaged plants and Ferns; Mr. Gelder the best flowering specimen; W. H. Gott, Esq., Armley House, Leeds (Mr. Meredith), the best Orchids, *Cattleya crispa superba* being good.

Messrs. Mack & Son, Catterick Bridge, were the principal exhibitors of Roses, staging very fine blooms; Mr. Samuel Hartley, Headingley Nurseries, closely following. Mr. Rylance had the best tender, and Mr. Hartley the best hardy cut flowers, both staging fine boxes. Mrs. Cowl, Burton Lane, York, had the best Carnations and Picotees; and Mr. Rylance and Mr. Henry Clark, Rodley, Leeds, the best Dahlias, the blooms being of excellent quality.

FRUIT-GROWING IN INDIA.

I HAVE to thank you for the book which you so considerately sent to save me time. It is a clear well-arranged manual, of which I am sure to be able to make some use. I have gone cursorily over it, and do not see any great difficulty in being able to follow its directions; but evidently the author makes it a condition *sine quâ non* of success that his dwarfs, pyramids, &c., must have complete rest for five or six months of the year. Now, our weather is so nearly uniform that I find it hard to determine without experimenting for some years which six out of the twelve months would be best suited to give rest to the trees. The time when they are at rest with you is the time here which most nearly approaches all the conditions for favouring growth, blossoming, and fruiting. Of the remaining period of the year four months (from June to September) are constantly wet, leaving only October for rest, November being the month for starting, as March is with you. If I want to rest the trees at all I must do it in the four wet months, and of course that can only be done under glass.

Any number of a few varieties of Peaches, Nectarines, and Apples can be had here from the hills, but they will be all seedlings, no grafted or budded plants being procurable. Of course my plan must be to have some "maiden trees" on approved stocks of some of the most desirable varieties that you will kindly recommend. I will also get out pips and stones for raising seedlings of the Quince and Paradise to serve as stocks for Apricots, Peaches, and Apples.

Now, I shall thank you for advice—1, As to the necessity and time for giving rest; 2, Whether "maiden trees" can arrive here safely when packed in a state of rest; and 3, The proper people to go to for my purchases.

Coming to another subject, I am glad to confirm all that Mr. F. Cheshire has said in the Journal as to the experiment of transporting bees to India, as I am the foreign correspondent referred to therein. I am very sorry my experiment failed, as we have here all the elements of success required for breeding bees. I have not yet tried the experiment promised in the concluding portion of the extracts given by Mr. Cheshire.—A PARSEE.

[1, The trees must have rest, but not necessarily for five or six months. After the fruit has been gathered, or towards what is your autumn, gradually withhold water from the trees in pots, and when the rainy season commences lay the pots on their sides, so that the soil is kept moderately dry. As to the duration of rest we can only say, Afford the trees all that your climate permits. 2, Fruit trees are successfully sent from England and America to all parts of the civilised world. 3, We think you will do best by obtaining trees from America, requesting some good nurserymen there to send you those varieties that succeed best in the southern States. You might write to Messrs. P. J. Berckmans & Co., Augusta, Georgia; or if there is not direct communication from there to Bombay, a good firm for you to apply to is Messrs. Ellwanger & Barry, Rochester, New York. We shall be glad to hear the result of your experiments, and wish you much success both in fruit culture and bee management.—EDS.]

VIOLETS IN JUNE AND JULY.—During June I gathered several flowers of Violet *Argentæflora*, and to-day (July 26th) I gathered enough blooms to make a bunch 6 inches in diameter from three dozen small plants. What I have long been desiring appears to have been obtained at last—viz., a variety that would supply sweet-scented Violets all the year round. *Argentæflora* appears to be a

continual bloomer, producing flowers from every joint of the stems, and the young runners throw flowers directly crowns are formed. It is a very sweet Violet, and has capital footstalks, admitting of the flowers being made up into large bouquets.—G. ABBEY.

EVESHAM FLOWER SHOW.

THIS Show was very successful and extremely well managed, and the following brief notes upon it may be of interest. First on the schedule were cut flowers, and of these Roses were the chief feature. In the open nurserymen's classes for thirty-six, distinct, single trusses, Messrs. Cranston were a long way first, their Général Jacqueminot reminding one very forcibly of the splendid treble shown by this firm at the Crystal Palace. Has the Herefordshire marl anything to do with the colour possessed by Messrs. Cranston's Jacqueminots this year? Mr. Corp of Oxford was a good second; Messrs. Cranston were also easily first with twenty-fours and twelves, and for the best collection of Teas. The same firm was followed by Mr. J. Mattock, Oxford.

In the amateurs' classes Mr. T. Jowitt, Hereford, was first with twenty-fours, distinct, single trusses, with splendid blooms of Alfred Colomb, Ferdinand de Lesseps, Emilie Hausburg, superb; J. S. Mill, Marie Finger, and Duke of Wellington, very good. Rev. J. A. Williams of Yardley Wood near Birmingham was second with good blooms of Marie Rady, Charles Crapelet, Marie Van Houtte, Anna Ollivier, and Marie Baumann, the latter perhaps the best bloom in the Show. Mr. A. Evans, Oxford, followed with smaller and rather soiled flowers. In the local classes for twelve distinct varieties Mr. Julius Sladden, whose collection of old Roses at the Crystal Palace two years ago won so much interest, was first with an excellent and even collection. Many very creditable blooms were staged in these local classes.

With regard to the other divisions of the Show, I must not forget to mention Mr. James Betteridge's (of Chipping Norton) collection of herbaceous plants. His double Pyrethrums and Delphiniums, &c., were excellent. This stand was in my opinion one of the features of the Show. The bouquets were good, and we were glad to see that Mrs. Evans, the wife of the indefatigable Secretary, was so successful in this class. The well-known Ettington Park Gardens contributed well in the classes for fruit.

In spite of heavy and frequent thunderstorms visitors patronised the Show right royally. Mr. Rowe, nurseryman, Worcester, gave extra prizes in the amateurs' classes.—J. A. W.

THE CELERY FLY.

LAST year this pest was very abundant, and severely injured the Celery crops in this neighbourhood. I also hear that many of the plantations in the market gardens round London were almost ruined by the same destructive enemy. Soon after our plants were placed in the trenches this year I observed the blistered leaves containing the grubs. Slugs were also numerous and attacking the plants. We strewed a mixture of lime and soot over the plants, hoping to arrest the progress of both intruders; it had the desired effect on the slugs but not on the grubs. After this at the commencement of rain I gave a slight sprinkling of nitre on the beds, and repeated the application in a fortnight on the approach of a shower. This with a plentiful supply of water at the roots is causing the plants to make rapid growth. The blister is still observable, and the grubs can still be found, but only on the lower leaves. By timely attention in removing as many of these leaves as can be spared, pinching with the thumb and finger the affected parts of those that cannot be removed, giving liquid manure freely, and an occasional sprinkling with nitre in showery weather, I think we shall reduce the ravages of this pest to a minimum.

Doubtless the cause of the fly becoming so abundant last year was owing to the coldness of the season, which caused the plants to grow slowly, so that they had no power to resist their enemy.—ROBT. D. LONG, *Thorne House, Wakefield.*

LIKE many of your correspondents my Celery plants have been severely affected by this fly. I planted two rows of the variety Sandringham White on the 20th of May, and in two or three weeks I saw signs of the attack of this insect. It appears to deposit its eggs on the under side of the leaf, generally near the edge, though occasionally I have found them near the base of the lobes. How long it is from the time the eggs are deposited on the leaves until the grub is developed I am not certain, but of this I am painfully aware, that when the grub does commence it is capable of consuming the pulp or parenchyma of an entire lobe of the leaf in from four to six days. Here the fly attacks the white more than the red varieties, though whether that is because the white was planted before the red I am not prepared to say. It completely spoiled the whole of my Celery last year, both white and red. The Celery at present appears much better than at this time last year, which I attribute to my greater diligence in looking

after the insect. I think it would be useful to know the position of gardens where the attack is very severe, as I have come to the conclusion that insect life generally is more prevalent in so-called sheltered gardens than in those that are open.

I do not find the application of lime act as a check to the fly. It is of no use to destroy the grub when it is once on the leaf. I have not tried soot, but the lime I have used is fresh-slaked grey lime. The only good I can see in the application of lime is that it compels the grubs to leave the Celery for a short time, but after the lime has been exposed to the atmosphere for a few hours it has lost its power, and the grubs return, and to apply it with any amount of success it would have to be done several times a day. I see it is recommended to crush the grub between the thumb and finger, but I find that it is not always so effective as would at first appear, as it happens if the attack is very severe that, beside the larger insects, there are sometimes two or three of smaller size, and in only crushing the large one and leaving it on the leaf the others escape. The only effectual way I have found is removing every part that is blistered. I can understand where there is only a slight attack that applying lime may be efficacious. My method is to diligently examine the Celery very often—every day if possible, and remove every blistered portion of the leaf that can be seen, but I never take more than is necessary, as the loss of every piece of leaf tends to weaken the plants.—W. H.

GLOUCESTERSHIRE SHOW.

LAST week the Gloucestershire Agricultural Society held their annual Show in The Park, Gloucester, and at the same time a remarkably fine horticultural exhibition took place. The Hon. Sec. was Mr. J. C. Wheeler of the Gloucester nursery and seed firm, and the management was in the hands of the officials of that establishment, who gave great satisfaction to the exhibitors by their admirable arrangements. Two spacious tents were devoted to the exhibits in this department, both being well and effectively filled—one with plants, cut Roses, &c., the other with fruit and vegetables.

In the open class for twelve plants in or out of bloom Mr. James Cypher, Cheltenham, was an easy first with handsome specimens. Second, Mr. J. T. Agg Gardner; third, Mr. Barnes. Fuchsias were small, but the specimens were clean and healthy; Mr. W. Nicks, Longford, and Mr. Barnes being the chief prizetakers. Zonal Pelargoniums were well shown by Messrs. Wheeler & Son and Mr. Barnes. In the smaller classes for ornamental stove and greenhouse plants the prizes were mostly divided between Mr. Cypher, Messrs. Wheeler, and Mr. Barnes. Exotic Ferns were admirable, T. Gambier Perry, Esq. (gardener, Mr. John Sowray), Highnam Court, Gloucester, being first with fine specimens of *Adiantum farleyense*, *A. tenerum*, *A. gracillimum*, and *Davallia Mooreana*. Gloxinias were small but good, Mr. W. Fletcher being first, Mr. Cypher second, and Dr. Campbell, Gloucester, third. One variety (Queen Victoria) amongst these was very attractive.

A fine feature in the Exhibition were the baskets of plants arranged for effect. Some of these were large hampers 5 or 6 feet in diameter, filled with Palms, *Dracenas*, *Caladiums*, Ferns, *Crotons*, *Begonias*, *Selaginellas*, &c. The first-prize hamper came from Mr. Cypher, second from Mr. Tolley, and the third from Messrs. Wheeler. Roses were shown in fine condition. For twenty-four cut blooms, distinct, Messrs. J. Jefferies & Sons, Cirencester, were first; but the second-prize collection from Mr. W. J. Grant, Hopend, Ledbury, were superior in many respects, many of the blooms being larger and fuller. Mr. W. Smith, nurseryman, Kingswood Hill, Bristol, was third with neat blooms.

Fruit was well represented. For a collection of eight dishes Mr. Coleman, The Gardens, Eastnor Castle, was first with fruit of great merit; second, Mr. Sowray, and third Mr. C. Tolley, the latter two falling off very much in Grapes. For three bunches of black Grapes Mr. Coleman was again first with magnificent bunches; Mr. Sowray was second with well-coloured bunches, but smaller than Mr. Coleman's. In the class for three bunches of white Grapes Mr. Coleman was again first with Muscat of Alexandria in the same fine condition as the Hamburgs; second, Mr. J. Muir, gardener to C. R. M. Talbot, Esq., M.P., Margam Park, South Wales, with bunches smaller than Mr. Coleman's, but better in flavour than some other varieties shown in the same class. For the Pine Apple, any variety, Mr. Muir was first with a finely grown Queen, Mr. Coleman being second with a good fruit of the same variety but slightly over-ripe. Peaches were good. First, Mr. Coleman; second, Mr. Sowray. Nectarines very high in colour and fine. First, Mr. Coleman; second, Mr. Muir. Figs.—First, Mr. Shingles, The Gardens, Tortworth Court. Cherries.—First, Mr. Coleman with a dish of Black Circassian extremely fine. Strawberries were good. Melons rather poor in appearance but rich in flavour. Scarlet-flesh, first Mr. Coleman with Read's variety. In green-fleshed sorts G. Moffat, Esq., Goodrich Court, Hereford (Mr. Spencer), was first with a fruit of William Tillery. Gooseberries, Raspberries, and Currants were shown in large quantities and fine condition.

Vegetables were satisfactory both in quantity and quality. For the collection of nine varieties there were ten entries, the first prize being secured by Mr. J. Muir with a superior collection; second,

Mr. J. Turk, Cheltenham, who had also a fine collection—as, indeed, had all those competing. Messrs. Wheeler offered liberal prizes for vegetables of their own introduction, such as the Gloucestershire Kidney Potato, Empress of India Cucumber, Kingsholm and Tom Thumb Lettuces, Beetroot, Peas, &c., and the numerous collections staged were creditable in the highest degree.

On the centre of the fruit table the bouquets and vases of cut flowers were appropriately arranged, and for these Miss Cypher of Cheltenham outdistanced all others, her arrangements being extremely light and elegant. Amongst various extra exhibits Messrs. Wheeler showed a fine stand of cut Roses and various well-grown plants, and in the agricultural department the same firm had a large collection of agricultural seeds, and Grasses testified to their undeniable quality.



ON Monday last an ARTISAN'S SHOW was held in the Gardens of the Royal Horticultural Society, South Kensington. The exhibits were not very numerous but of generally good quality. Capt. Patton's large group of plants also remained on view, and in addition the Exhibition of the British Bee-keepers' Association was opened to the visitors. The nominal fee of 2d. was charged for admission, and above 11,000 persons assembled during the afternoon notwithstanding the frequent showers.

TWO cases of what is perhaps the most destructive and difficult to eradicate of all garden pests have come under our notice during the past week—viz., the PHYLLOXERA ON VINES. Those whose Vines, young Vines especially, which are apparently in an unhealthy condition (while they are at the same time in suitable soil, and receiving otherwise good treatment), should, if they are in doubt on the subject, send us a sample of the foliage of the young laterals, and also of the fibrous roots, for examination, as it would be a great calamity if this terrible pest were permitted to spread in this country.

SWEET and chaste white flowers for bouquets and vases are always welcome from the beginning of November onwards, and hence the popularity and usefulness of ROMAN HYACINTHS. For having these early no delay should occur in potting the bulbs, five or six of which should be placed in a 5-inch pot, the soil employed being rich, light, and sandy. The pots should then be plunged in ashes, and when filled with roots and the growth appears above the soil the pots may be placed on a shelf in a moderately heated house. Successional batches of bulbs may be potted at fortnightly intervals, those for early flowering being put in at once.

A CORRESPONDENT, "J. E. B.," writes to us approvingly of CONQUEROR OF EUROPE MELON for growing in frames with a few leaves for affording a gentle bottom heat for starting the plants, and no top heat in addition to that of the sun. "This Melon," he says, "is one of the hardiest of all, one of the freest croppers and best setters, while the fruit is handsome and of excellent quality." The true variety—and it is not always possessed by seedsmen—is rather oval-shaped with a bright yellow skin and finely netted, the flesh being nearly white."

WE have recently seen a fine batch of ELLAM'S EARLY CABBAGE, and it may be useful to mention the fact at this the period of sowing the seed, for the spring crop of this most important vegetable. The crop to which we refer was raised from seed sown in the spring; the plants are very dwarf, the firm medium-sized hearts almost resting on the ground. This new variety is well worthy of trial, and may probably with advantage be included in the three or four varieties that are grown in many gardens.

AN excellent gardener speaking to us on preventing the

attacks of the CELERY FLY, suggests the application of paraffin in very small quantities. He has been syringing his rows lightly once or twice a week with a water in which a small wineglassful of paraffin has been mixed in every four gallons, and the plants have greatly improved in appearance. He suggests that probably if rags were dipped in paraffin occasionally and suspended near the rows that the fly would not alight on the plants to deposit eggs. The proposed plan is worthy of being tried, as the second attack of the fly usually occurs in August.

THE northern division of the NATIONAL CARNATION AND PICOTEE SOCIETY will hold the annual Exhibition on Saturday, August the 14th, in the Botanical Gardens, Manchester. The Botanical Council grant £10 towards the prize fund, exhibition space, and free passes to exhibitors. All inquiries should be addressed to the Honorary Secretary and Treasurer, the Rev. F. D. Horner, Kirkby Malzeard, Ripon.

DURING the past week there have been two EXHIBITIONS OF PLANTS AND FLOWERS at the Crystal Palace. On Saturday Messrs. Cranston & Co., Hereford, sent about 12,000 Rose blooms, which were arranged on a low sloping central stage. A large number of varieties were represented, many of the blooms being exceptionally fine. On Monday Messrs. Laing & Co., Forest Hill, J. Peck & Son, and the General Horticultural Company, exhibited large groups of plants, comprising handsome specimen fine-foliage plants and others very pleasingly arranged.

IN one of the carpet beds at Battersea Park a NEW VARIETY OF ALTERNANTHERA is very noticeable for its distinct and bright appearance. It is a form of *A. paronychioides* with larger leaves of a bright yellow tinge that is very effective. It is appropriately named *A. paronychioides aurca*, and as arranged in contrast with the brightly coloured *A. amoena* is most pleasing. The carpet bedding in this Park is now in its best condition, the colours being bright and the designs tasteful.

AS a means of preventing the attacks of insects and mildew on Roses and fruit trees what may be termed BARDNEY'S INSECTICIDE deserves special mention on account of its simplicity and efficiency. The Tea Roses that are growing so luxuriantly in the excellent house devoted to them in Mrs. Heywood's garden at Norris Green, and the remarkable cleanliness and rich colour of the foliage of the Peach trees in the several houses, afford striking testimony of the value of this insecticide as used by Mr. Bardney. About 2 lbs. of soft soap are placed in a saucepan with a little water, and boiled for about twenty minutes. This is mixed with five or six gallons of water and kept in a large flower pot. Half a pint of the solution is placed in a large waterpot full of water used for syringing. Neither insects nor mildew appear able to exist on the foliage, while nothing can exceed the admirable condition of the trees and Roses. It is important that it be used regularly, that is whenever the syringe is employed.

IN the same garden some VINES IN POTS afford evidence of very superior culture. A cane of Duchess of Buecleuch is bearing five bunches as fine as are usually seen on established Vines. Foster's Seedling and the Black Alicante are also remarkably fine, bearing bunches and large and well-finished berries. The Vines are one-year canes, grown by Mr. Cowan at the Garston Vineyard in 10-inch pots, and just when commencing growth they were shifted into 13-inch pots, and to this additional root room Mr. Bardney attributes much of his success in producing such excellent Grapes.

WE are informed that Mr. Bentley of Scarborough has invented an APPLIANCE FOR SYRINGING PLANTS, which is noteworthy for the fact that it may be charged in separate compartments with pure water and a liquid insecticide, either of which may be ejected at the pleasure of the operator.

— A CORRESPONDENT writing from Brockham in Surrey upon THE RAINFALL during the past week, states that between 9 A.M. on July the 29th and 9 A.M. July the 30th 1·7 inch of rain was registered, or above 1½ inch in twenty-four hours.

— IN the suburbs of Reading there are many picturesque residences, which in several instances are situated in very ornamental and well-kept grounds. One of the best places in this respect is that owned by Mr. Martin Sutton, senr. This gentleman, although still one of the senior partners of the well-known firm of seedsmen, the Messrs. Sutton & Sons, really takes no active part in the business, but being in good health naturally takes a keen interest in what is going on, notably in the nursery and trial grounds, and horticultural pursuits generally. He has every reason to rest contented with his past labours and achievements, and also with what is still being done by the junior members of the families of the Brothers Sutton.

— WE are informed that the ALEXANDRA PALACE FRUIT SNOW will be held on the 3rd, 4th, 5th, and 6th of September, when liberal prizes will be offered for collections of fruit.

— WE have received from Mr. E. P. Dixon, Queen Street, Hull, fruits of a NEW RASPBERRY which are very large, of good form, and fine flavour. Mr. Dixon states, "It originated from the Northumberland Fillbasket, but is ten days earlier, of more robust growth, frequently bearing fruit in the autumn from the same season's canes, and the fruits are larger, of deeper colour and better quality than its parent."

— WE learn that the autumn Exhibition of the READING HORTICULTURAL SOCIETY will be held August 19th in its usual picturesque position—namely, the Abbey Ruins, Forbury. In addition to the large number of classes provided in the schedule Messrs. Sutton & Sons will offer a silver cup, value £5 5s., for a collection of fruits, comprising eight dishes of distinct kinds.

— NOT only are ORCHARDS in many parts of the country almost destitute of fruit, but many of the Apple trees appear to have received considerable injury by the wet autumns and severe winters of the past few years. In the case of hundreds of trees that we have seen both in the northern and southern counties nearly all the growth made last year appears to be killed, and the trees present a most unsatisfactory appearance, while the foliage has a sickly hue, the fruit is small, and a large proportion is dropping off.

— WE learn that the WEST OF SCOTLAND PANSY SOCIETY'S EXHIBITION held on the 28th ult. in the City Hall, Glasgow, proved very successful notwithstanding the unfavourable weather that prevailed. There were upwards of four hundred entries, about two hundred varieties of Pansies being represented in very fine condition generally. Roses and Pinks were also exhibited, and miscellaneous collections of plants were provided by Messrs. R. Bullen, Botanic Gardens, Glasgow; G. Russell, gardener to Lord Dean of Guild; Merrilees, Glasgow; McKenzie, Paisley; J. Anderson, Meadowbank; J. Dobie, Rothesay; W. Paul, Paisley; Downie & Laird, Edinburgh; J. Bryson, Helensburgh; and W. Campbell, Dunoon.

— ON the 27th ult. ST. STEPHEN'S GREEN, DUBLIN, was formally opened as a public park or recreation ground. It comprises about twenty-two acres, and was presented to the City by Lord Ardilaun, who, it is stated, had previously expended upwards of £20,000 upon the place. It is pleasantly laid out, and will no doubt prove a great boon to the inhabitants.

— THE thirteenth annual Exhibition of the CHEADLE HORTICULTURAL SOCIETY will be held on the 27th and 28th inst. in the grounds of Dr. Dodson. Prizes to the amount of £140 will be offered.

— MESSRS. KELWAY & SON, Langport, Somerset, inform us that they have a new and magnificent display of HYACINTHUS CANDICANS, comprising about one thousand plants in full bloom. "Some of the spikes measure from 2 to 3 feet in length, with from fifteen to twenty-five pure white blooms each. The individual flowers are about 2 inches in diameter, and supported on foot-stalks of similar length." The value for decorative purposes of this handsome plant in such exceptionally fine condition cannot be over-estimated either for culture in the borders or in pots.

— ON the 2nd instant the BECKENHAM HORTICULTURAL SOCIETY held their annual Exhibition, by the kind permission of F. Thirkell, Esq., in the grounds of The Hall, Beckenham Road. The exhibits were numerous and generally fresh and vigorous, Potatoes being staged in superior condition. The following were the principal exhibitors:—F. Thirkell, Esq. (Mr. Poffley), J. Moore, Esq. (Mr. S. Nash), J. Goddard, Esq. (Mr. Reed), P. McKinlay, Esq., Croydon Road (Mr. G. Townsend), F. P. Alliston, Esq. (Mr. E. Braybon), H. Wood, Esq. (Mr. J. Braybon), R. Reid, Esq. (Mr. G. A. Steer), and J. Cameron, Esq. (Mr. W. Whitehouse). Messrs. Laing & Co., Forest Hill, sent a large group of plants, and Mr. H. Cannell, Swanley, exhibited cut flowers of Zonal Pelargoniums and Verbenas, which attracted much attention. All the arrangements were very satisfactory, and creditable to the Society's officials.

— AN American contemporary has the following remarks on the beautiful diminutive shrub *EPIGÆA REPENS*:—"Epigæa, Trailing Arbutus, May Flower, and Ground Laurel. This flower is known by these various names in different sections of our country. The plant is supposed to be indigenous to North America, and refuses to be nurtured, preferring the wild fastnesses of Nature. It abounds in luxuriance in the lake region, and also in Plymouth, Mass., where it was the first flower that gladdened the Pilgrim Fathers in their new home. It is still gathered there in great beauty, and large supplies are sent to the Boston market, where it is sold in small bunches during its season, which lasts from ten days to a fortnight." This plant, however, notwithstanding the supposed difficulty attending its culture, succeeds admirably in Mr. G. F. Wilson's garden at Weybridge, as was recently noted in the pages of this Journal; we have also seen it growing luxuriantly in moist peat soil in a garden in the south of Scotland.

LINARIAS.

THE genus *Linaria* comprises many both weedy and ornamental species, and the difference between many of the forms are not very well marked. However, as a rule, this is but of minor importance to the floriculturist. I have never been fortunate enough to meet with a large living collection, therefore I only intend to bring to notice such as I have grown, excluding the more inconspicuous forms. Many of the perennial forms produce long straggling branches, therefore it is advisable that they should be secured to stakes, as it adds much to the beauty of the plant. I purpose starting with the perennial forms. *L. triornithophora* is a tall-growing species with purple flowers solitary in the axil of each leaf, which are placed in whorls. The flowers are large, but the inflorescence is too lax, hence it is more curious than pretty. It is a very desirable species, but is only half-hardy. *L. repens* has very small flowers with bluish veins on a white ground, and attains a height of 2 to 3 feet. *L. purpurea* is very similar in all respects, except that the flowers are purple. *L. genistæfolia* is a small yellow-flowered species, and varies in height from 18 inches to 2 feet. It is not so hardy as the last two species, and is much less common. *L. vulgaris*, though one of the commonest, is beyond all doubt one of the most handsome, the orange palate of its flower contrasting admirably with the pale yellow. As a weed it is about equally as troublesome as *L. repens*, but it might be kept within bounds to a great extent if planted in pots plunged so as to hide the rim. This would also result in producing a denser mass of flowers. The variety *Peloria*, which has regular flowers with five spurs in place of one, is very interesting. Two years ago I had from Herefordshire a specimen which had one half the

flowers normal and the rest those of *Peloria*. *L. origanifolia* is a dwarf species of somewhat decumbent habit, bears small blue flowers, and is well adapted for the rockwork, but being scarcely hardy it requires the protection of a frame during winter. *L. Cymbalaria* must not be omitted, as it gives a very pleasing aspect to rockwork. *L. pilosa* is somewhat rare; it belongs to the same type as *L. Cymbalaria*, and the flowers are similar, but the leaves are pilose and the habit tufted. It is admirably adapted for rockwork, and ought to be in every collection of alpine. *L. alpina* is an old and well-known species and one of the most beautiful, its blue and orange flowers being extremely attractive. It is of biennial duration, but reproduces itself freely from seed.

Among the annuals there are many of great interest, but I know of none that equals *L. reticulata*, *Desf.*, variety *aureo-purpurea*, and the var. *luteo-aurantiaca*, both found in Algeria, the seeds of which were transmitted to this country in 1876 by Cosson, a French botanist. *L. maroccana*, *Hk. fil.*, is also a very pretty species with purple flowers. I have saved seed of it, and this season I notice a plant among the seedlings with magenta-coloured flowers. It is quite distinct from the rest of its congeners, and I trust that it will ripen its seeds. The last three grow from 12 to 15 inches high. *L. triphylla* is a well-marked species. It varies in height from 9 to 12 inches or more. Its flowers are purple, yellow, and white, which give it a very striking appearance. *L. spartea* bears lax racemes of yellow flowers. *L. Perezii* is another pretty species. It has small yellow flowers, and becomes attractive from its small dense foliage. All *Linarias* thrive best in light soil well exposed to the sun.—M.

AUTUMN MANAGEMENT OF GRAPES.

WHAT "AN OLD GROWER" says on page 52 about allowing the temperature to become too low at night and neglecting to ventilate early in the morning resulting in scalded berries I have no reason to doubt, but why not leave the vineries open all night? It is certainly cheaper than maintaining a temperature of 70° by fire heat, and if the Vines are started early in the season there is no difficulty in having the Grapes ripened. The late Grapes here are now colouring, and as I think that a larger crop of better-coloured Grapes can be secured by cool night temperatures than otherwise, the ventilators are at no time entirely closed. During summer, fire is not employed unless in dull weather.

It is somewhat strange that the Grape Vine should be almost without exception treated as a tropical fruit, when it withstands our coldest winters out of doors, and in the south bears fruit freely. What is said about the necessity of frequent dampings of internal surfaces reminded me of a remark made by a gardener last year when three of us were inspecting his magnificent crops of Grapes. The surfaces of the borders were literally swamped with water, and the gardener expressed his opinion "that any less water applied to the surfaces would result in the crops being scorched and destroyed by red spider!" These Vines were five years old and growing in the natural soil, which was one admirably adapted for fruit-production. If they produce good Grapes ten years after this it will be in spite of the atmospheric moisture supposed to keep them alive. My system is very different from this, yet there is no red spider or thrips on the Vines—only the remnant of a colony of mealy bug, which can now scarcely be called troublesome; yet the Vines are neither syringed nor the surfaces damped. The soil is one on which red spider ought to be at home, and the Vines ought to be worn out in ten years; nevertheless they are carrying better crops to-day than they did five years ago, and I see no reason why they should not continue to do so as long as the vineries themselves stand, provided they are treated to a cool temperature and the soil kept sufficiently moist at all times.

I was much surprised last year when pulling out an old Vine border, which had been made in what was previously an inside pit for plunging Pines, to find one of the Vines, which had always been most robust and prolific, had some of its main roots under the pit and in some rubbish where the roof water was drained. Though the Grapes on this Vine did not finish so well as the others, yet the crops it produced were wonderful. I am more convinced than ever that keeping borders constantly in a moist condition, and keeping the atmosphere of the house constantly changing, are the principal means of maintaining either young or old Vines up to the highest pitch of fruit-production without wearing them out through overcropping. It must be borne in mind that the majority of Grape Vines are cropped to their utmost, and the gardens where the crop is limited to eight or ten bunches on a Vine rod, say 24 feet in length, are very few indeed. When it is considered that ten years of the former system of cropping is sufficient in many cases to exhaust Vines there

is obviously something radically wrong. If young Vines were gently dealt with for the first few years of their existence they would bear well at the time it is generally most required of them—viz., when they settle down to the production of "family" Grapes.

The foliage of Vines has always been considered by good Grape-growers as of the first importance in determining the fruit-producing qualities of the Vines. There are two extremes in the matter of the management of Vine leaves which should always be guarded against; the one is that of allowing the laterals to ramble and interlace all over the roof, and the other that of restricting the laterals to a particular leaf. The main rods are generally too near to each other, and in such cases close pinching is almost a necessity. I consider from 3 to 4 feet distance between the rods no more than sufficient, and I am allowing 4 feet in the case of young Vines lately planted. I may note here that I allow old Vines a moderate lateral growth, so that every available space is filled with foliage, and as the Grapes ripen I cut all laterals in to the main bearing side shoots, and subsequently shorten these back to a leaf beyond the bunch, so that by the end of October each shoot will only have from four to six of the largest leaves. I believe this is conducive to free bearing and healthy growth in two ways. In the first place, whilst the bunches are growing, and until they are approaching ripeness, the amount of foliage left bears them through these stages; and in the second place, cutting away the laterals and shortening back the main shoots are conducive to the keeping of the Grapes, and give the wood every opportunity of maturing thoroughly. These, then, are the principles I adopt in the management of Grape Vines for late bearing: An early start, an atmosphere kept in a healthy condition (not by continued applications of moisture, but by a constant supply of fresh air night and day), borders kept continually moist, and a free and full summer foliage, to be reduced as the Grapes ripen, in order to ensure the keeping qualities of the Grapes and a crop the succeeding season.—R. P. BROTHERSTON.

BORDER FLOWERS—THE CATCHFLY.

IN a well selected and cultivated collection of herbaceous plants there is much to afford pleasure at all seasons of the year, and I have now something to say about the Catchfly. Among the *Silenes* we have some of the choicest ornaments of our borders, rockwork, and similar positions. I am satisfied, however, that they are comparatively neglected, although we have several attractive native species. *Silene inflata* on our hedgebanks is very beautiful. *Silene alpestris* ought to be in all borders and on every rockery; it enjoys the sunshine, but should have thorough drainage. It may be increased by seed sown in the spring in a cold pit, or by dividing the plants after flowering. When well established it is very effective. *Silene maritima* is also a desirable native; the double variety is especially deserving of a place on the rockery. *Silene Schafta* is a grand plant for the border in the autumn. I think this plant might be advantageously employed as a bedding plant. It is in most places a fine addition to the rockery, and is increased by seed in the spring and cuttings in the autumn. One of the brightest species is *Silene pumila*, which ought to be in every collection; it can be increased by seed sown in the spring. *Silene Elizabethæ* is very attractive when well established; it is of dwarf habit and requires care in cultivation, thorough drainage being essential to its success. Seed may be sown in the spring in a cold pit or frame, or the plant may be divided; sandy loam and peat are a suitable compost. There are many others of this charming genus, such as *Silene fimbriata*, *S. pennsylvanica*, *S. quadridentata*, and *S. acaulis*; the latter is seen in all its beauty in its native home among the rocks in the Highlands of Scotland and the Welsh mountains.—CLOVEWORT.

AQUILEGIA CÆRULEA.

THE Columbine represented in the annexed engraving is unquestionably one of the most beautiful forms in cultivation, the delicate tints of the flowers, the graceful foliage, and neat habit rendering it highly attractive. Not only is it a fine border plant, but it also succeeds admirably under culture in pots; and when a number of plants are grown in that way they are of considerable value for the greenhouse or conservatory, where by a little skilful arrangement they may be made to produce a charming effect. The form of the flowers and foliage is fairly well indicated in the engraving, which cannot, however, convey an adequate idea of the plant's beauty owing to the absence of colour. The sepals have long spurs and are of a pale blue tint, which contrasts most pleasingly with the white petals and the rich bright green foliage. There is a form known as *Aquilegia cærulea hybrida*, the result of a cross between *A. cærulea* and *A. chrysantha*, which is also very

attractive. This possesses the pale blue sepals of the former parent, but the petals have become a pale yellow shade, thus clearly indicating the effects of the other species in the cross. It is more robust than *A. cærulea*.

In culture the two referred to above require similar treatment to others of the genus—namely, a moderately warm border of light rich soil, and they can be increased by division or seeds.

For culture in pots the latter mode is preferred, the seeds being sown in April; and the young plants produced should be gradually potted-on, first several into a 5-inch pot, and finally singly into the same size. This is amply large enough for *A. cærulea*, but the stronger-growing form *A. cærulea hybrida* will require pots 6 or 7 inches in diameter. The plants may be placed outside or in cold frames, from which the lights should be removed as fre-



Fig. 26.—*AQUILEGIA CÆRULEA*.

quently as possible. Such, in brief, is the system adopted by Mr. Douglas of Loxford Hall, where Columbines are extensively and successfully employed for decorative purposes, and I have followed the same treatment with considerable satisfaction.

A. cærulea is a native of California, whence it has been introduced within the past twenty years. It was in the opinion of Mr. Burke, a well-known collector of plants, who found it near

Fort Hill, "not only the queen of Columbines, but the most beautiful of all herbaceous plants."—R.

POTTING STRAWBERRY PLANTS.—As the time has now arrived for potting Strawberry plants, the following brief notes may be useful. The soil should be prepared some time beforehand, and

must consist of good turfy loam and well-decayed horse manure, without straw. Much depends upon the manner in which the drainage is attended to. A few broken potsherds should be carefully placed in the pots and covered with coarse crushed bones, upon that lumps of-fibry loam may be placed with a layer of soot. In potting, great care should be taken to press the soil very firmly into the pots. The following are in my opinion the best Strawberries for forcing in the order of their ripening—Vicomtesse Hericart de Thury, Sir Joseph Paxton, President, and British Queen.—A. R. P.

SHREWSBURY ROSE SHOW.

THIS most promising and energetic of our lately formed Rose exhibitions is a branch of the long-established Shropshire Floral and Horticultural Society, which may well be held up as a model to most existing sister institutions, inasmuch as she has attained the enviable position of reckoning the balance in her Treasurer's favour by four figures at the close of her spring, summer, and autumn exhibitions—a most remarkable and almost unique result all those who have to do with these matters will be the first, if somewhat sadly, to allow, and reflecting the greatest credit both on the executive and on the many resident territorial magnates of proud Salopia, who by their purse and products lend all the assistance in their power. As usual this unpropitious season, those fitful drenching storms which well-to-do holiday folk dread so much prevailed all day, and was the only disturbing element to an otherwise complete success, though the Exhibition was held in a roomy well lighted and ventilated hall. The Hereford Roses carried off most of the chief prizes, and in this respect the Society was liberal, as not one class was reserved locally. Messrs. Cranston & Co. had splendid blooms, and took first prizes for both the forty-eight single varieties and thirty-six triplets. To the latter a special condition was attached that each variety should be exhibited in three different stages of development—an idea, on so large a scale at least, we believe the public will consider more erroneous than commendable. Messrs. Dawson were a good second in each of the above classes. There was no competition for the third prize. In the classes for thirty-six varieties, from which competitors in the two former classes were excluded, Mr. Jowitt, Hereford, was first with a fine bright collection. Mr. Hawtreys carried off the second prize after a very close contest with Messrs. Dickson & Sons. In Class 24, single varieties, Mr. Jowitt was again first in order of merit, while Messrs. Dickson & Sons and Mr. Hawtreys changed places. In the Tea and Noisette class a very creditable competition took place considering how adverse the late winter and summer have been to these loveliest and most delicate of Roses. Five exhibits, of very fair colour and freshness, faced the Judges, Messrs. Cranston taking first prize easily with a neat collection. Mr. Hawtreys was second, and Messrs. Dawson third.

In the class for twelve Roses of any one variety Mr. Jowitt carried off the first prize with H.P. Alfred Colomb. Your reporter had not the privilege of seeing this gentleman's much-vaunted collection of this Rose at Manchester; but at Shrewsbury it was the general opinion that twelve more shapely, bright, and at the same time level and immense, blooms were never staged. Messrs. Cranston & Co. took second honours with that vigorous old variety Mdle. Marie Rady, and magnificent specimens they each were, enhancing the well-earned triumph of the victor, while Messrs. Davison & Co. secured third prize with another collection of fine H.P. Alfred Colomb in a remarkably good class. Messrs. Cranston & Co. were awarded a certificate of merit for their new Rose Mrs. Jowitt, a seedling of which this firm has already an immense stock, so highly have they long valued its merits. It is a cross between Mdle. Marie Rady and Duc de Rohan; the vigorous foliage and wood of the latter it closely resembles, while in shape and substance it may be said to follow a well built-up extra bright Alfred Colomb.

The Rev. C. H. Bulmer and Mr. Griffiths, Tillington Nurseries, Hereford, acted as Judges. All official arrangements were carried out by Messrs. Adnitt & Naunton, the energetic and obliging Hon. Secretaries, in evidently the most practised and successful manner. The system of reversed cards being affixed to each exhibit was followed as at the metropolitan exhibitions; and with the single exception of the Judges being requested to obey the absurd, and it is to be hoped the purely local, custom of retiring from the Exhibition Hall until their services were required, every detail was most pleasantly and efficiently carried out. It only remains to add that if the National Rose Society's Provincial Meeting is not held in Shrewsbury next year, from the remarks your reporter heard transpire, it will not be the fault of the Shropshire Horticultural Society, who are most ambitious to secure that honour, and are fortunate enough to possess an unusually capacious well-lighted Market Hall, admirably adapted for the purpose.—THE HEREFORDSHIRE INCUMBENT.

PORTRAITS OF NEW AND NOTABLE PLANTS.

BIGNONIA CAPREOLATA var. *ATRO-SANGUINEA*.—"Bignonia capreolata is one of the loftiest climbers in the forests of the Southern United States from Virginia to Florida and westwards to the Mississippi, where it ornaments the rocks and trees by its luxuriant foliage and (usually) orange-yellow flowers. The Ame-

rican name of Cross-Vine is given in reference to the wood of the stem, which on a transverse section presents the form of a cross."—(*Bot. Mag.*, t. 6501.)

ODONTOGLOSSUM ODORATUM.—"A many-flowered sweet-scented species of *Odontoglossum*, discovered in the humid and gloomy forests of the Sierra Nevada of Merida, at an elevation of 7000 to 8000 feet, by Linden. It belongs to the section with *O. Hallii*, *Lindl.*, *O. nævium*, *Lindl.*, and others which constitute the genus *Odontoglossum* as first known and described. All have slender spreading ears at the top of the column, which sometimes end in bristle-like appendages."—(*Ibid.*, t. 6502.)

POLYGONUM CUSPIDATUM.—"P. cuspidatum is a native of Japan, and there is in the Kew herbarium a very similar plant from North China, collected by Dr. G. Shearer at Kieu Kiang; the specimens of this are, however, not sufficiently good to pronounce upon, and the racemes from which the flowers have fallen are much shorter and more fascicled. This species was introduced into England many years ago; it has been cultivated for a quarter of a century at Kew, to which it was, I believe, sent from Holland. Like the rest of the half-shrubby species, it flowers very late in the season, and is dioecious. It is a tall, glabrous, bushy herb, 6 feet high, with innumerable stout, branching, angular, red-brown leafy stems, rising in a tuft from an underground rootstock which sends out innumerable runners."—(*Ibid.*, t. 6503.)

CAMPANULA FRAGILIS.—"Often have we heard travellers from Italy expatiating upon the beauty of the spots which are enamelled with the bright blue flowers of this interesting stranger, but it was never our good fortune to see it alive till we met with it in the garden of Mrs. Marryatt at Wimbledon. According to Alphonse De Candolle this plant is a native of the evergreen region of Italy south of latitude 41°, and struggles through the lower woodland region up to the upper limits of the Beech, about 3000 feet above the sea, growing in exceedingly dense tufts on limestone rocks. However, specimens have been gathered by Mr. Grove at 5000 feet elevation, in the valley of Orfenda of the Abruzzi. A glabrous, hairy, or pubescent decumbent herb, with slender branches 6 to 10 inches long springing from a woody perennial rootstock."—(*Ibid.*, t. 6504.)

BERBERIS BUXIFOLIA.—"Berberis buxifolia ranges from Chili to the Straits of Magellan, and probably further south, but in Fuegia it is replaced by *B. ilicifolia* and *B. microphylla*. It was introduced into cultivation by seeds collected by Mr. Anderson, the botanical collector attached to Capt. King's survey of the Magellan Straits, which were raised in Mr. Low's nursery at Clapton. It has long been cultivated at Kew. The berries are eatable. It is an erect, glabrous, rigid shrub."—(*Ibid.*, t. 6505.)

INDIGOFERA ANIL.—"This, the indigenous Indigo of the West Indies, is the representative of the *I. tinctoria* or Indigo of the Old World; but both of these plants having been cultivated for some centuries for the extraction of the well-known dye, are now naturalised in the tropics of the Old and New World. Of the two species, *I. tinctoria* was known for its product from very early times, being in use by the Egyptians and described by Dioscorides; whereas the *I. Anil* could not have been known in Europe or the East until after the discovery of America. An Indigo appears, however, to have been used by the natives of the New World before it was brought into competition with the plant of the Old; for Sloane (*Hist. Jam.* vol. ii. p. 37) says, 'Robt. Tomson ap. Hakl., p. 454, found it about Mexico, where it is used to dye blue.' An erect shrub, 3 to 6 feet high, faintly hoary, with appressed hairs, which are attached by the middle."—(*Ibid.*, t. 6506.)

ST. IVES (HUNTS) HORTICULTURAL SOCIETY.

THIS Show was held in the grounds belonging to Henry Goodman, Esq., on Needingworth Road, and it was considered to be the finest since the inauguration four years ago. We congratulate the promoters upon the rapid strides made, which is evidenced by the increased number of exhibitors. The productions were arranged in three large tents kindly lent by Bateman Brown, Esq., J.P. If the Society progresses in the same proportion another tent or two must be provided in the future.

The leading features of the Show were the Rose classes, for which the following prizes were kindly given by the Mayor, John Wadsworth, Esq. For twenty-four distinct varieties the first prize was taken by A. G. Soames, Esq., Irnam Park, Bourne, whose blooms were greatly admired; the second by Messrs. Paul & Son, Cheshunt; and the third by Mr. W. Farren, Cambridge, whose blooms keenly contested for second honours. For distinct varieties open to all amateurs Mr. Soames again came first, the Rev. E. L. Fellowes of Wimpole Rectory being second. The following celebrities also exhibited—Messrs. E. W. Cooper, House, L. Curtis, J. Smallbones, and Burton.

For twelve distinct varieties, confined to amateurs members of the Society, Mr. T. Seckings, Earith, took first prize, and Mr. R. M. Copley, St. Ives, second. The principal exhibitors in the amateurs' flowers

were the Rev. C. Hoskyns, Messrs. Warner, Copley, Chapman, Baker, Carroll, and Woods. In table decorations the Misses Kings, Wadsworth, and Hewlins, were the chief prizetakers with arrangements which were greatly admired.

In vegetables Messrs. Copley, Wise, Adams, Woods, and Chambers obtained the chief honours. Not the least important feature of the Show was the cottagers' classes, which still continues to be the chief aim of the promoters to foster. The vegetables and flowers were extremely creditable to all the exhibitors. Amongst the Potatoes we noted a new seedling raised by Samuel Russell of Holywell, and called the Holywell Seedling, which appeared to be a promising variety. The weather was all that could be desired.

A DAY IN BEDFORDSHIRE.—No. 2.

AFTER a stroll through the estate of Old Warden, described last week, an evening visit was paid to

SOUTHILL PARK.

This is the residence of Samuel Whitbread, Esq., M.P., whose richly-wooded demesne is of great extent. In the park are some grand old Cedars of Lebanon, and the deciduous trees are numerous and large; it also contains a fine sheet of water. The pleasure grounds are extensive, and grand old Conifers with rare deciduous trees adorn the lawns, while there are borders of Rhododendrons and dense thickets of evergreens; the Yews are evidently of great age, and almost form arcades over the walks and drives. Adjoining the large mansion is a conservatory, which with rockwork, Ferns, Palms, Camellias, &c., might be rendered highly ornamental. At present its principal occupants are some remarkable flowering specimens of *Cordyline australis* reaching to the roof, their trunks being 18 inches in circumference. On the back wall is a grand example of *Rhynchospermum jasminoides* in superb condition, bearing thousands of trusses of flowers most valuable for cutting. A *Pelargonium* on the same wall, apparently *P. cucullatum*, or a variety of that species, yields also an abundant supply of flowers. But the chief feature of Southill is the kitchen garden, which is about six acres in extent, every portion being closely cropped. Vegetables of all kinds were in splendid condition, and Currants, Gooseberries, and Strawberries were bearing immense crops, but Apples and Pears were sparse. Plums on the west aspect of a wall were plentiful, on the east aspect there was scarcely any fruit. Strawberries were indeed a remarkable crop, that of the variety Wonderful being prodigious, the fruit ripening to the point, which is not always the case with this variety. President was also exceptionally fine. Mr. Landers, the gardener, is a great advocate for mulching, the ground being covered several inches deep with bracken early in the season, and thus the roots of the crops are kept cool and moist, and little or no artificial watering is required. The glass structures are old, and the Vines have passed the zenith of their vigour; the best, however, is made of them, and good culture prevails throughout the establishment.

MARKET GROUNDS.

These are extensive in that district of Bedfordshire within easy reach of Sandy station, and vegetables are largely and excellently grown for the London market and northern towns and cities. The tremendous hailstorms that brought such great losses to many cultivators, almost ruin to some, in the Thames Valley, proved beneficial to Bedfordshire growers in a manner that the general public would scarcely anticipate. For some years there has been great competition between the market gardeners of the two districts for London manure; but since the storms that proved so costly the Surrey and Middlesex men have not been able to purchase so largely, and consequently the manure has been unusually cheap, and greatly increased quantities have been purchased for the Bedfordshire farms and gardens.

The soil is of medium texture, rather light than heavy, free to work, moderately deep, and resting on gravel, and the district is sheltered by rising ground, hills crested with woods on the eastern side trending to the north. These natural advantages are supplemented by a superior system of cultivation. Manure is applied to the land liberally, and is appropriated by the crops, not by weeds, which have had more to do with the late and present depression in agriculture than has yet been fully appreciated. Corn crops, Potatoes, vegetables, and the raising of such seeds as Onions, Mangold Wurtzel, Turnips, and Carrots, appear to alternate, and all are good, most of them splendid. The holdings are generally small—from one to four or five acres, and their rental is £4 to £6 per acre. At this rental the tenants appear prosperous, and the landlords are probably satisfied. The secret of the success is that each holder does not appear to have more land than he can manage well. Small farms generally are perhaps not the most highly cultivated, but that is because, small as they are, they are beyond the means and capital of the tenants to cultivate profitably, and it is certain that many large farms are suffering now

from the same cause. They are, in fact, too large, and the lowering of the rents of such farms will neither make the owners nor tenants rich, while the consuming public have also a share in the disadvantages inseparable from a system where the capital of the cultivator is disproportionate to the acreage of the land. The Bedfordshire holdings referred to are more like gardens than farms, and it would be well if there were more such, and there is no reason why there should not be in every, or nearly every, county in England.

The corn, Potato crops, and breadths of seed are splendid, but the heads of Onion seed are not generally of great size. Many acres of Onions are grown for producing bulbs. The seed is mostly sown broadcast, and the weeding is done at so much per acre, the men using short one-handed hoes; but in most instances some other crop is grown with the Onions, the seed of both being sown on the same ground in proper proportions. Sometimes the second crop, to mature in the autumn after the Onions are harvested, is of Parsnips, in another breadth Carrots, and in a third Parsley, the plants in each case being thinly disposed. Parsley thus grown in open fields endures severe frost much better than that grown more closely in the rich soil of sheltered gardens; and when the produce realises 10s. to 15s. a pound, as it has done in London from December to March during the past three years, the crop pays all expenses and the Onions go for profit. Between the rows of some early Potatoes are planted Brussels Sprouts and Kales, and also Scarlet Runners, all of which are lucrative. Thus every provision is made to ensure a good return, and complete failures are reduced to a minimum.

"Ridge" Cucumbers are grown by the acre, but not on ridges. The ground is simply heavily manured, and well dug and stirred, the Cucumber seeds being sown about the middle of May. Thick rows of Onions for seeding are planted at intervals of 5 or 6 yards, the growth affording shelter for the Cucumbers. Sometimes rows of Rye are sown for the same purpose; but the best Cucumbers I noticed were in small squares bounded by rows of early Peas. Vegetable Marrows are grown in the same way. Cucumbers were last year a failure, and this year they are not promising, but with fine summers and autumns the crops are very profitable. On the whole the garden-farming of this district is most creditable to the cultivators, whose forethought and industry might well be copied in many other localities. But I am now approaching a place of interest, and of which the readers of the Journal will be glad to hear something—namely,

THE EXPERIMENTAL GARDEN AT GIRTFORD.

Mr. Laxton has done so much in the cause of horticulture by raising standard varieties of Roses and vegetables, that a brief reference to this garden cannot fail being acceptable to many readers of the Journal. It may be well, however, to commence with a caution. Not a few votaries of gardening are enthusiastic, commendably so in many instances, and it is no task to them to travel long distances to see anything grand or imposing in their favourite pursuit. There is nothing of this nature at Girtford, and no long pilgrimages can be advocated for the purpose of inspecting its beauties. In the first place it is a new garden, and in the next nothing of an ornamental nature is attempted: it is merely the scientific and practical laboratory of a skilful man. When the great trial collections of Strawberries were fruiting, the Roses blooming, and the Peas and Beans in full bearing, the garden possessed some attractions, and it was unquestionably full of interest.

It is just a plain enclosure of three acres, something like a cottage garden by the wayside of the village, and extending back and widening into a field. The north side is bounded by a wooden fence, on which fruit trees, mostly Cherries, are being trained, with Tea Roses at the foot. It is separated from the village simply by a low wall, and on the field or garden sides by galvanised wire. The soil is variable, remarkably so for so small a plot, but as it is all good this is an advantage for experimental purposes. The "Experimental" is undoubtedly admirably situated, being in a locality noted for its commercial gardening, and, what is important, is contiguous to a line of railway.

It is not a garden of fads where all sorts of vague experiments are tried for self-gratification, and, as such gardens usually are, a scene of beautiful disorder. On the contrary, a very practical air pervades it, and order and good culture prevail throughout. It is a commercial and scientific establishment conducted by a practical man—a gardener by instinct and intuition, diligent worker, a good cultivator, a close observer, and a careful recorder of the points and merits of varieties of plants and vegetables with their pedigrees.

The plan adopted appears to consist in making crops essentially useful and always in demand give an immediate return, or in plain terms to "pay" for the labour involved in the production

of new varieties of decided novelty and sterling merit. Remembering Mr. Laxton's success as a hybridiser of Peas, Roses, and Strawberries, and noting also the condition of the garden and the work in hand, there is no reason why the undertaking should not prove a success. To all outward appearance the prospect is good, and certainly there were some profitable crops in the garden at the time of my visit. For instance, early Potatoes, a fine yield, were being dug and packed for market; this crop alone would be lucrative, but in addition a valuable second crop will be taken from the same ground. Scarlet Runners had been sown at intervals of about 18 inches between the rows of Potatoes, the plants to be grown in bush form by occasionally pinching the stems. They were flowering freely before the middle of July, and are sure to be profitable. Several varieties of Potatoes are being tried, one that promises to be very useful for "double cropping" being the American Beauty of Hebron, which is much dwarfier than the Early Rose and is earlier, while it otherwise much resembles that variety. It was too early for any estimate being taken of the varieties generally, but not too early for seeing that the disease had slightly affected a few of the plants; but as the affected haulm is removed immediately the much-dreaded symptoms are seen no material loss is anticipated.

Of Strawberries there is a great collection in short rows for purposes of comparison, all the new and most of the best old English and continental varieties being represented. Hybridising and seedling-raising is also going on. One rather remarkable cross had been effected—namely, between the fine variety Dr. Hogg and the common wild Strawberry of the woods—the former the seed-bearing parent. The variety selected as the result of this cross has the form of leaf of Dr. Hogg with its dark green colour, and the slender proliferous creeping runners of the wild Strawberry. The fruit is intermediate between the two, being nearly an inch in diameter, round, resembling in shape Trollope's Victoria, red, and with a curious blending of the flavours of the two parents. This variety is not considered "good enough" to be increased and distributed, and will only be employed for crossing purposes. Seedlings were being raised in pots. It is not likely that much earlier varieties than those now in commerce can be produced, but a good Strawberry decidedly later than our present varieties would be an acquisition; or one of a continuous bearing character, and the raising of these ought not to be an impossibility.

Peas are a feature of the Garden, Mr. Laxton pursuing the work of crossing with diligence, and the work of selecting a very few from a great number of varieties is no easy task, and can only be done with advantage by those having a wide knowledge of all the existing varieties. The temptation to retain too many must be great, since so many are good, but only those undoubtedly distinct are kept for trial a second time. There are Peas of almost all attained heights, sizes, and colours, from the diminutive Minimum only a few inches high with a mass of pods, to such imposing forms as Superlative Improved, Telephone, and others which cannot be named; but the Pea of the Garden is John Bull that is fully referred to on another page. There are Peas with black pods and white pods, and mottled pods, and, of course, all shades of green; in fact to the casual visitor the collection is a little bewildering. The pedigrees of all the varieties and their qualities are carefully and accurately recorded, and everything is done in a systematic manner and with a clearly defined object. Beans are receiving similar attention and also other vegetables, of which probably something will be heard by-and-by.

Roses, as may be expected, continue to be crossed and raised. There are thousands of seedlings, not a few of which are flowering, from seed only sown in the spring of the present year. Immediately a bud can be had from a variety of promise it is inserted in a stock for fully testing its merits. And here special knowledge is again requisite, for Roses that are only semi-double at first often prove eventually to be grand varieties, while those that are double at first frequently become so close and firm afterwards that they do not expand freely. Mr. Laxton has already raised more Roses of sterling merit than any other raiser, and further successes may with much confidence be expected to follow the efforts of this skilled and careful operator and indefatigable worker.

Omitting much that is worthy of mention in the "Experimental," it may be remarked that the Garden is just what its name implies. No mere fancies are indulged in for making a show. It is not a garden of beauty but of utility, and it is not a public but a private garden.—J. WRIGHT.

PRIMROSES AND COWSLIPS.—A lady from Jersey tells me that there are plenty of Primroses in the island but no Cowslips, and that if Cowslips are taken over to Jersey they soon change to

Polyanthuses—i.e., the flowers become larger and assume a pinkish hue. This agrees very nearly with the statement of the Devonshire people, that Cowslips if taken there soon change to Primroses.—AMATEUR, *Cirencester*.

TWO SCOTCH ROSE SHOWS.

AGAIN it has given me great pleasure to attend the rosy gatherings of the Galloway and West of Scotland Rosarian Society's Shows, for although minor affairs in comparison with many of those which I have the happiness of being present at, yet in one respect—viz., hearty love for the Rose, they will yield to none; and although, as in all other things of a similar character, one has to notice changes and losses, yet it is a pleasure to meet friends again and to find heartiness in love of the Rose not diminishing but increasing. In one respect the Exhibition this year differed from others previously held—none of the English nurserymen were present. Messrs. Dickson and Co. of Newtownards, and Mr. Dickson of Belmont near Belfast, however, were present in force and worthily maintained their reputation.

There has been a marked difference between Scotland and England on the point of weather this year, for while we have had a season in which Roses have been behindhand in point of time and characterised by incessant thunderstorms and deluges of rain, in Scotland they were more forward than were in the south-east of England. The hay was all in, Roses were past their best, and the rivers quite low; in fact in some places watering Roses had to be resorted to. First in order was

THE GALLOWAY ROSE SHOW.

This, which has been hitherto held at Newton Stewart, was this year held at Stranraer, the extreme point of the peninsula which forms that portion (consisting of Wigtonshire and Kirkcudbrightshire) of Scotland known under the name of Galloway, Newton Stewart being about the centre and Castle Douglas the inland extreme of it. The change did not seem to be a happy one, for although the day chosen for the Show was that on which the Galloway Agricultural Society held theirs, there were fewer attendants than at Newton Stewart, and certainly fewer Roses; and I do not think, although Stranraer is a thriving place, that it will soon again have a Rose Show.

Messrs. Dickson & Son of Newtownards were first in the open class with a very fine stand, in which were the following—Dupuy Jamain, Marie Rady, Marie Verdier, apparently a good Rose of a peculiar shade of colour; Baroness Rothschild, Mrs. Laxton, Madame Bernet, Dr. Sewell, Eugénie Verdier, and Louis Doré, a promising new Rose. Mr. Smith was second with a good stand, in which the most noticeable were Thomas Methven, Gaston Levêque, apparently a good new Rose; Ferdinand de Lesseps, Baron Haussmann, Léon Renault, Le Havre. Mr. Smith was also first in the twenty-four class confined to local growers; in this stand were fine blooms of Mons. E. Y. Teas, Penelope Mayo, Sophie Fropot, and others. In the class for twenty-fours, confined to amateurs and gentlemen's gardeners, Mr. J. Richardson of Tondraghee Gardens was first. In his stand, besides other well-known favourites, were good blooms of Mdlle. Gabrielle Luizet, François Louvat, Madame Nachury, and Baronne de Rothschild, Cheshunt Hybrid, Boieldieu, Comtesse de Paris, very bright; and Comtesse de Serenye, clean and good. In the class for twelves Mr. P. Lennox was first, A. Colomb, La France, Dr. Andry, were the best blooms; and Mr. McMunro was first in the class for amateurs only. He had good blooms of Madame Charles Wood, Etienne Levê, Maréchal Niel, and Marie Rady. The other classes do not call for any particular comment. Cottagers were poorly represented, and the bouquets were indifferent, except one, which consisted of seventy-five distinct varieties of herbaceous plants.

It was indeed a strange experience for me to revisit a place in which fifty years ago I had spent some very unhappy months as a half-starved schoolboy, and where I had not been since; still more to revisit, as I did the following day as the guest of my good friend Provost Stuart, Brodick Bay and Lamash in the island of Arran—places I used in those long-past days, when many a time I was thankful enough after a stormy cruise to find myself in shelter. And how retentive memory is of those early days! As we steamed into Brodick I could without difficulty call to mind the Castle, and the road to Kilmichael, where blackcock and grouse used to abound, and where my good father used Col. Fullerton's property, bringing home many a weighty bag. And now! Well, if the times have not changed, which assuredly they have, we at any rate have done so.

THE WEST OF SCOTLAND ROSARIAN SOCIETY'S SHOW

Was held in the grounds of The Hermitage at Helensburgh, and was remarkable for the large number of amateur exhibitors and the general good character of the blooms, although, as I have said, in some instances the season was past. Notably was this the case with Major Denniston's flowers, which had won high honours at Edinburgh, and which last year occupied so conspicuous a place, but were now over. Messrs. Dickson & Son of Newtownards were first in the open class for nurserymen, their stand comprising amongst others good blooms of Etienne Levê, Capitaine Christy, Annie Wood, Charles Lefebvre, and Mrs. Laxton. Messrs. Hugh Dickson of Belmont, Belfast, was first in the class for thirty-six with a fine stand consisting with others of the following—Marquis of Salisbury, Charles Lefebvre, Barthelemy Joubert, and Horace Vernet. Amongst amateurs Thomas Watson, Esq., of Row (gardener, Harry Lester), was

the most successful competitor, while my friend Mr. Whitwell of Darlington carried off the prize for twenty-four open to all with a very excellent stand. One other prominent feature of this Exhibition is the large number of bouquets. On this occasion there were no less than 238, and it was amusing to see the competition there was to get these and the Rose blooms after the Exhibition had closed, for a regular auction was held, and the whole, which goes to the benefit of the Society, amounts to a good round sum; and those persons who hold the notion that the Scotch have no humour in them would have been not a little surprised to have heard the shouts of laughter with which the auctioneer's sallies were greeted.

As is usual on these occasions the Show was formally opened at half-past one o'clock, and Provost Stuart did it admirably and with excellent taste, while at the dinner he presided in that genial and hearty spirit which always makes a dinner go off well. The Society is in a flourishing condition, and with such active officers its prosperity is assured.—D., Deal.

OPHIOGLOSSUM VULGATUM VAR. AMBIGUUM.

THE accompanying illustration is a faithful representation of this rare Adder's-tongue Fern, which was discovered by Mr. W. Curnow some years ago at St. Martin's, one of the Scilly Isles. Some botanists regard it as a mere form of the common *O. vulgatum*, and others as identical with *O. lusitanicum*. I wrote to



Fig. 27.

Mr. Curnow on the subject, and the following is his reply:—"In regard to *Ophioglossum ambiguum*, I think it is generally considered distinct from *O. lusitanicum*, and that it is only a variety of *O. vulgatum*. The season of fruiting is in accordance with this. If, on the other hand, as some say, this is found at Scilly in fruit in January, I should regard it as identical with *O. lusitanicum*. Living plants of the latter that I had from Jersey or Guernsey last year did not, as far as I could perceive, differ in appearance from the Scilly plants, but the former fruit in the early spring months, whereas the latter fruit in May and June. The question seems to be, Does it fruit twice in one season?—W. CURNOW."

It must be remembered that the range of *O. lusitanicum* is very extensive, inhabiting the sandy coasts of Europe and Africa washed by the Mediterranean, extending to the Canary Isles and Madeira. I may also add that the time of fruiting of those found at Scilly agrees exactly with those that are found in Portugal—viz., May and June, so that probably the Scilly plants are the typical *O. lusitanicum*, and the Guernsey plants the varieties.—W. ROBERTS, Penzance.

ACER NEGUNDO VARIEGATA.

AMONGST white-leaved deciduous trees or shrubs for associating with other colours this has no equal, and it is surprising that it is not more planted in flower gardens, about pleasure grounds, carriage drives, and such places. It is also worth growing in pots for conservatory decoration. I lately saw a fine quantity of it in this way in Messrs. Veitch's Nursery, Chelsea, as a foreground to the banks of fine, healthy, dark green-leaved Camellias which are cultivated to such perfection in one of the entrance

corridors to these excellent nurseries. As seen against the dark green leaves it was very effective. As noticed at page 29, the bed of blue Delphiniums and this Acer in Batterssea Park was most pleasing when I saw it three weeks ago.

It grows equally well with Mr. T. S. Ware at Tottenham, but there it is not seen to the best advantage, as it is planted chiefly near the tops of hardy plant mounds with no other foliage near. In pleasure grounds no one could err in planting it about the margin of shrubberies.—J. M.



HARDY FRUIT GARDEN.

WASPS are extremely abundant this season, and although there is little of the finer fruits to tempt them, the smaller kinds are not free from their depredations, hence it becomes imperative to destroy all the nests possible. Commence in good time to trap the insects by means of bottles half filled with well-sweetened beer or cider, and suspended near the places the wasps frequent. If the wasps taken are numerous the bottles should be cleared every morning.

It may seem superfluous to make any remarks about ripening fruit, but its generally scarcity render more than ordinary care necessary. Apricots are fine, only Oullins Early, St. Ambrose, and Moor Park have fruit to which ants pay assiduous attention, but guano sprinkled at the base of the wall occasionally will drive them away. Plums on wall-trained trees are swelling well, and in some instances are a fair crop, but pyramidal trees are almost a failure, the fruit having dropped except Rivers' Prolific, an excellent early culinary Plum. The leading shoots of wall trees should be regularly nailed or tied-in, allowing room for the swelling of the shoots, continuing to remove or stop superfluous or foreright shoots, avoiding overcrowding, so that the young wood retained may derive the benefit of light and air. Grape Vines on walls should have all superfluous shoots removed, and the laterals well pinched back, so as to admit sun and air to the wood, keeping the fruit close to the wall, the berries being carefully thinned out on each bunch. Ripening fruit of Apricots and Peaches must be examined daily, and when mature it should be removed carefully, as undue pressure will injure the flesh and decay speedily ensues. The fruit is better for being allowed to lie for a day or two on padded shelves in a well-ventilated fruit-room. Protect Morello Cherries with nets from birds, and after hanging a time this fruit is much esteemed by some for dessert, and it forms acceptable dishes in September and early October. Bushes of Red Warrington or any other late Gooseberries, together with Red and White Currants, should be covered with nets to preserve the fruit until a late period. Mats from excluding air and light and engendering damp should never be used. Hexagonal netting is the best material for the purpose. Continue to layer runners of Strawberries in pots for forming fresh plantations, and where runners are not required they should be removed from plants in bearing.

FRUIT HOUSES.

Melons.—Give all possible attention to the batch of plants recently planted out for affording ripe fruit in October, encouraging them by every means to make a strong and quick growth, affording a minimum temperature of 70° to 75°, and a maximum of 90° to 95°, with a moist atmosphere, and shade only to prevent flagging. Train with one stem only, allowing them to advance well up the trellis before stopping, and pinch out all laterals between the bed and trellis directly they are visible. Earth-up the roots of plants which have set the fruit; afford the needful support to fruit hanging beneath the trellis; and be careful in the application of water when the fruit is ripening, not, however, permitting flagging. Late crops in pits and frames should have a steady bottom heat to enable the fruit to swell off freely, applying a good lining if necessary, and afterwards admitting a little air constantly to allow rank steam to pass off. Canker is unusually prevalent both at the collar and in the old growths. Employ no more water than is absolutely necessary to maintain the plants in healthy growth, and ventilate constantly in dull wet

weather, rubbing out the canker with fresh-slaked lime. Cracked fruits result from excessive vigour and too much atmospheric moisture. Cut the stem about half way through a joint or two below the fruit, and ventilate freely, reducing the supply of water to the roots without allowing severe flagging.

Cucumbers.—The plants for autumn fruiting should be placed out at once, observing the same conditions as for late Melons, except that the temperature need not be so high by 5°. In pits and frames keep the foliage well thinned, the old growths constantly removed, and in laying-in young growth be careful to add a few handfuls of fresh soil where convenient. Close the lights as early as is consistent with the well-being of the plants, maintaining a free and fruitful growth.

Figs.—The second crop of fruit on early-forced trees will now be ripening, and the supply of water at the roots must be carefully regulated so that the flavour of the fruit be not deteriorated. Syringing the foliage must also cease, and a free circulation of warm dry air afforded, which should be continued to the trees after the fruit is gathered, as it is of the utmost importance that the wood be thoroughly matured. The early-forced trees in pots should when the crop is gathered be continued under glass until their growth is mature, similar remarks applying to trees in pots intended for early forcing for the first time. The young trees obtained from cuttings in spring, and intended for forcing in the second or third year of growth, must be attended to in pinching off the tops of all the strongest shoots to form a symmetrical head in the first year of training. The latest-forced trees which ripened their first crop in June will now be swelling a second crop, and must be thinned where too crowded, the swelling being encouraged by syringing the trees twice daily, keeping the roots well supplied with liquid manure and the mulching constantly moist. Maintain a brisk temperature by closing early, and after the fruits commence ripening a circulation of dry warm air constantly will be needful. Steady attention must be given to stopping and tying, avoiding overcrowding the young shoots, as they will, especially vigorous shoots, need all the light that can be secured to them.

Cherry House.—Trees subjected to forcing for several years successively are liable to premature growth, which is best arrested by fully exposing them to the air and light. Red spider is not very partial to the leaves at this stage, but the foliage should if necessary be washed occasionally, and black fly must be eradicated by the application of tobacco water. The border must not be allowed to become excessively dry, but receive copious supplies of water when necessary, and an application of liquid manure will assist in plumping the buds. Trees in pots will require frequent attention with water, and the foliage must be kept clean, so as to maintain it in a healthy condition as long as possible.

PLANT HOUSES.

Orchids.—The temperature of the East India house may range from 75° to 85° by day, and average 65° at night; the temperature of the Cattleya house may be 5° less. Continue the same general treatment of plants in the East India house. The shading in the Cattleya house may be almost dispensed with, except when the sun is very bright. Cattleyas making their growth should receive every possible encouragement. *Calanthe vestita*, *C. Veitchi*, and *C. Warneri* should not be any longer shaded, but be watered liberally at the roots for some weeks to come, and occasionally with weak liquid manure. *Dendrobium nobile*, *D. Cambridgeanum*, and many other *Dendrobes* will have completed their growth, and should be placed in a light position, where they can ripen their new growths. *Odontoglossum vexillarium* will now be breaking again, and may be repotted, and water afforded according to its requirements. Plants of *O. Phalaenopsis* requiring more root room should be attended to at once, avoiding overpotting, and affording extra drainage, watering freely. *Thunias* should be moved to a light airy house, where they will ripen off; but they must still be watered. Thrips are often troublesome at this season; fumigate frequently, and wash the foliage with a solution of soft soap, and afterwards sponge with clean rain water.

Stove.—Gardenias that were struck during the spring for winter flowering should be well attended to, not allowing them to become root-bound, but shift into pots 7 or 8 inches in diameter, according

to the vigour of the plants, and keep them near to the glass in a moderately high temperature to secure well-matured growth before autumn. Few flowers are so acceptable as Gardenias, and no plants more easily grown; the chief point is to keep them free from mealy bug, the plants being frequently scrutinised for them, and given when needful a thorough cleaning. The fragrant *Toxicophloeæ spectabilis* is also useful, the flowers being produced freely in corymbs. It requires a cool stove or intermediate house, succeeding well in sandy peat.

Hoya bella as a bouquet flower when mounted is one of the most beautiful, and as a basket plant is unrivalled. It may be grown in pots plunged in baskets lined with moss, and does not require much root space, succeeding in sandy peat or light fibrous loam. In late summer *Æschynanthuses* are very effective suspended in conservatories; they also may be grown in pots and plunged in baskets lined with moss. Flowering as they do when flowers are scarce—viz., in late summer and autumn—it is remarkable they are so seldom seen, especially as they are of easy culture. *Tillandsia Lindenii*, with its intense blue flowers, is very effective, and small plants are very useful. It is increased by suckers, which are produced after flowering; these when large enough should be taken off, and placed singly in small pots. Sandy peat, well drained, and a light position suits it.

Allamandas will continue flowering until a late period, providing they be regularly supplied with liquid manure. *Bougainvillea glabra*, whether in pots or planted out, should be similarly treated. Early-flowered *Gloxinias* should be gradually dried off by withholding water and keeping the plants in a light airy position until their growth is matured, when they may be stored away either in the pots or in boxes in slightly damp sand in a temperature of 45° to 50°. Later-blooming plants should receive liquid manure occasionally. *Achimenes* likewise should be afforded weak liquid manure occasionally; and the bright scarlet *A. coccinea* and *A. ignea*, if kept near to the glass and in not too high a temperature, will flower until an advanced period in autumn. *Gesnera exoniensis* and *G. zebrina splendens* should have weak liquid manure afforded them to secure sturdy growth and fine spikes of bloom.

Stove plants that have been placed in the conservatory will succeed so long as the weather is warm, and the precaution is taken not to supply too much water nor to ventilate too freely in dull weather. When the nights become cold valuable specimens should be returned to the stove, or they will receive a check likely to interfere with their future welfare.

NOTES ON VILLA AND SUBURBAN GARDENING.

KITCHEN GARDEN.

Lifting Potatoes.—It is to be hoped that many have profited by the advice frequently given in the pages of this Journal, to the effect that all early and second early Potatoes that have perfected their crop of tubers should either be lifted or have their haulm drawn from them before becoming diseased. Probably there are some who have been deterred from adopting this sensible practice, as the growth this season is unusually vigorous, and giving the appearance of still being growing, when in reality the tubers are fully grown, or at all events sufficiently so to admit of being lifted. By destroying the haulm the channel by which the disease is conveyed to the tubers is also removed, and as a consequence those unaffected will remain so. They will mature in the ground, or they may be lifted on the morning of a dry day and allowed to remain exposed till the evening, by which time their skins will be set. Any of the American varieties, also the Dalmahys, Schoolmasters, Shaws, Dons, and other quick-growing varieties, and even the *Magnum Bonum*, may now in many districts be lifted, but the Scotch Champion and similarly late-maturing varieties must not yet be touched. The Potatoes have caused the winter greens and Broccoli where planted between the rows to be much drawn. When lifting the Potatoes in this instance first clear off the haulm, then fork out straight ahead, throwing the tubers behind, and working the soil up to the rows of plants on both sides.

Successional Crops.—The ground previously occupied by Potatoes if forked over as the process of lifting proceeds, cleared of all rubbish and levelled with a rake, will be ready for a sowing of Turnips; or

providing it was well manured in the first instance, it may be planted with breadths of Savoy, white Broccoli, sprouting Broccoli, Kale, Brussels Sprouts, Coleworts, Endive, and other quick-growing crops. The drills for the Turnips may on good ground be 15 inches apart, and suitable varieties are Snowball, Veitch's Red Globe, or the American Red Stone and Chirk Castle Black Stone. A distance of 15 inches each way will also suit the Coleworts and the small Savoy. Although it is late for planting Brussels Sprouts they may during a mild winter prove remunerative. These, and also Broccoli, greens, and the Drumhead Savoy, may be planted in drills 2 feet apart, and the plants 18 inches asunder in the rows, as in most localities they will not grow to a great size. The small varieties of Endive, such as the Moss-curl, may be planted about 9 inches apart each way, and the larger, of which the best is the Improved Batavian, about 12 inches apart each way. It is not too late to sow the former and also some of the Cabbage varieties of Lettuce, and any seed there may be left of the summer Cos varieties. The latter should not be thinned very freely; they will then form hearts quickly, and be found useful with Endive in salads. Parsley if sown now may perhaps be found useful during the winter and spring, and if some of the spring-sown be transplanted it will be improved, and is less liable to run to seed early the following spring.

The drills, for whatever purpose drawn, should be thoroughly soaked with water if at all dry some hours previous to planting or sowing. The Broccoli and greens ought to be planted very firmly, as they then take more readily to the soil. Water them in, and when found to be established draw the soil up to the stems.

Strawberries.—The present is a good time to form a fresh plantation of these, and if strong well-rooted plants are properly planted on good soil they will yield a crop of excellent fruit next season. The earliest runners are usually layered during July into 3-inch pots, but this season being rather showery plenty of well-rooted plants may be taken up with a trowel from between the lines of old plants. It is a mistake to cling to any old and perhaps worthless variety, Trollope's Victoria for instance, or to any other presumably good variety, should that not do well, especially seeing how cheaply plants of any good variety can be purchased. Keens' Seedling is a good old early variety, but Vicomtesse Hericart de Thury is a much heavier cropper. Sir J. Paxton is a good second early variety, but does not succeed on all soils, and both The President and Sir C. Napier are more to be relied on for yielding heavy crops of fruit of the best quality. Good profitable late varieties are Dr. Hogg and British Queen, the former sometimes succeeding where the latter fails, and *vice versa*. Ground that has either been trenched or deeply dug and cropped with early Potatoes will be found suitable for Strawberries, and after being prepared as above advised for the vegetables, should, previous to planting, be heavily trampled. Draw shallow drills 30 inches apart, and on rich soil 3 feet apart, and place the plants 18 or 20 inches asunder. Plant very slightly below the level, and make the soil about them as firm as possible. Those plants received by post or otherwise that have no soil attached to their roots should first be immersed in water for a few hours, and when planted the roots should be spread evenly in the soil. The best crops are usually obtained in the open ground, but in many small gardens they are substituted for Box on each side of the walks, and are certainly very profitable edging plants. Any established plants that have not borne more than two or three good crops, and which it is thought advisable to save, should have all the runners and a few of the outer leaves trimmed off; the beds hoed to destroy the weeds, and these and the loosest of the mulching cleared off. Cut off the exhausted plants with a spade, hoe the bed, and rake off loose rubbish. Do not dig the ground, but at once draw drills between the old lines, and plant out Broccoli or Savoy. Broccoli thus treated make very sturdy growth, and are less liable to be destroyed by frost. Any of the varieties above recommended are suitable for culture in pots. Those who intend growing a few are referred to the remarks on the subject on page 64 of this series.

Cabbage seed should now be sown in order to obtain strong plants to stand the winter. Suitable varieties are Heartwell Marrow, Enfield Market, Suttons' Imperial, and Early Rainham. Sow thinly, and protect from birds.

TRADE CATALOGUE RECEIVED.

Jules de Cock, Faubourg St. Liévin, Ghent.—*General Catalogue of Plants.*



* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Culture of Double Pyrethrums (*C. L.*).—Full particulars of the treatment double Pyrethrums require appeared in No. 1003 of this Journal, to which we cannot do better than refer you.

William Tillery Melon (*A Young Gardener*).—The following is the description of this Melon, which was certificated by the Royal Horticultural Society in 1879—Fruit large and handsome, having a dark green skin, and regularly netted. Rind very thin. Flesh pale green, juicy, sweet, and of excellent quality.

Early Rose Potatoes (*A Young Gardener*).—Your crop of 683 lbs. from 19 lbs. of seed, occupying ground 36 yards long by 6 yards wide, is not exceptional. The crop from 33 yards by 13 yards of ground is much better; 61 lbs. of seed yielding 1794 lbs. is at the rate of a little over 8½ tons per acre. The results are satisfactory, but they have been more than doubled.

Grapes Shanking (*Subscriber*).—We are glad to hear that our advice has proved so serviceable to you. Shanking is generally caused by overcropping or defective root-action, the latter arising from stagnant soil causing the roots to decay, or a very dry border causing them to shrivel. The berries always stop swelling for a week during the stoning period. Your Vines are probably rather overcropped.

Beetles Infesting Parsnips (*J. E.*).—The insects sent belong to the genus *Hister*, one of the group of beetles called "Mimic," from the readiness with which they feign death. Hence they may be easily shaken off the plants on which they are feeding and then destroyed. But their usual food is animal and vegetable substances in a state of decay, and probably their attacking the leaves of Parsnips and Potatoes indicates an unhealthiness in the plants from some cause.

Chrysanthemum frutescens (*Subscriber*).—The plants intended for winter flowering should have the flower buds removed until within a month of the time that flowers are wanted. Cuttings inserted now will form small plants that will flower freely during the winter, five or six being grown in a 5-inch pot. Cuttings for producing plants for bedding-out next year may be inserted in September in sandy soil, the pots to be placed in a frame or propagating house, and shaded and kept close for a few days just to prevent flagging, then inured to light and air.

Heating Stove and Fernery (*H. R.*).—You will require four rows of 3-inch pipes to heat the stove, two along each side, or, if the house is a lean-to, at the front or in the pathway, and for bottom heat two rows of 3-inch pipes will be sufficient for a bed 3 feet wide. They should be surrounded and covered to a depth of about 3 inches with rubble, and over this place the plunging material. The same number of pipes as for the stove will be required for the fernery if to be kept at stove temperature, or two rows—*i.e.*, a flow and return, if for greenhouse Ferns.

Culture of Gold and Silver Ferns (*N. B.*).—The genus *Gymnogramma*, which you designate by the above popular name, includes many beautiful forms, all of which are of easy culture, and are from their distinct appearance especially deserving of attention. The compost they require is a mixture of fibrous peat and silver sand, the pots being of moderate size and carefully drained. A light position should be selected for the plants in a stove fernery, or a slightly shaded place in an ordinary stove would suit them; but in either case care must be exercised to avoid wetting the fronds when syringing, or the delicate "farina" will be washed off. Abundance of water is required at the roots, and if the plants are allowed to suffer in the slightest degree from inattention to this bad results invariably follow.

Culture of Euphorbia splendens (*A Young Gardener*).—The plant of which you sent a specimen is *Euphorbia splendens*. It is of easy culture, requiring a stove temperature, and a soil of fibrous loam and sand, with a small proportion of lime rubbish. The pots should be well drained, as any stagnant moisture is especially injurious to the plants, as their stems are very succulent. When the plants are growing freely water may be liberally supplied, liquid manure being also beneficial occasionally. Although succeeding well in pots this *Euphorbia* is more useful if planted out in a border against a wall in the stove, where flowers will be freely produced, showing a considerable portion of the year.

Culture of Vincas (*Ibid*).—*Vinca rosea* and *V. alba*, to which you refer, are useful quick-growing stove plants that require no special treatment, and flower freely. A rich light compost of loam, sand, and a small proportion of well-decayed manure suit them admirably. Abundance of water is required whilst the plants are growing. To form bushy specimens it will be necessary to pinch the shoots back and shift the plants as they fill their pots with roots.

Characteristics of a Good Pansy (*F. G. S.*).—In reply to your question we append from our Manual, "Florists' Flowers," the following description of the chief qualities a Pansy should possess to be fit for exhibition:—"1, Each

bloom should be nearly perfectly circular, flat, and very smooth at the edge; every notch or unevenness being a blemish. 2, The petals should be thick and of a rich velvety texture. 3, Whatever may be the colours, the principal or ground colour of the three lower petals should be alike; whether it be white, yellow, straw colour, plain, fringed, or blotched, there should not in these three petals be a shade difference in the principal colour; and the white, yellow, or straw colour should be pure. 4, Whatever may be the character of the marks or darker pencillings on the ground colour, they should be bright, dense, distinct, and retain their character without running or flushing—that is, mixing with the ground colour. 5, The two upper petals should be perfectly uniform, whether dark or light, or fringed or blotched. The two petals immediately under them should be alike; and the lower petal, as before observed, must have the same ground colour and character as the two above it; and the pencilling or marking of the eye in the three lower petals must not break through to the edges. 6, If flowers are equal in other respects, the larger, if not the coarser, is the better; but no flower should be shown that is under $1\frac{1}{2}$ inch across. 7, Ragged or notched edges, crumpled petals, indentures on the petal, indistinct markings or pencillings, and flushed or run colours, are great blemishes; but if a bloom has one ground colour to the lower petal and another colour to the side ones, or if it has two shades of ground colour at all, it is not a show flower. The yellow within the eye is not considered ground colour."

The Lady Apple (*R. P., Devon*).—The Apple to which you refer is the Api of pomologists, and the following description and history from the "Fruit Manual" may be of interest to you:—"A beautiful little dessert Apple; in use from October to April. It should be eaten with the skin on, as it is there that the perfume is contained. The skin is very sensitive of shade, and any device may be formed upon it, by causing pieces of paper, in the form of the design required, to adhere on the side exposed to the sun, before it has attained its deep red colour. The tree is of a pyramidal habit of growth, healthy, and an abundant bearer. It succeeds well in almost any situation provided the soil is rich, loamy, and not too light or dry, and may be grown with equal success either on the Doucin or Crab stock. When worked on the French Paradise it is well adapted for pot culture. The fruit is firmly attached to the spurs, and forcibly resists the effects of high winds. According to Merlet, the Api was first discovered as a wildling in the Forest of Api, in Brittany. It has been asserted that this Apple was brought from Peloponessus to Rome by Appius Claudius. Whether this be true or not there can be no doubt it is of great antiquity, as all the oldest authors regard it as the production of an age prior to their own. Although mentioned by most of the early continental writers, the Api does not appear to have been known in this country till towards the end of the seventeenth century. It is first mentioned by Worlidge, who calls it 'Pomme Appee, a curious Apple, lately propagated; the fruit is small and pleasant, which the Madams of France carry in their pockets, by reason they yield no unpleasant scent.' Lister, in his 'Journey to Paris, 1698,' speaking of this as being one of the Apples served up in the dessert, says, 'Also the Pome d'Apis, which is served here more for show than for use; being a small flat Apple, very beautiful, and very red on one side, and pale or white on the other, and may serve the ladies at their toilets as a pattern to paint by.' De Quintinye calls it 'Une Pomme des damoiselles et de bonne compagnie.' Under the name of Lady Apple large quantities of the Api are annually imported to this country from the United States, where it is grown to a great extent, and produces a considerable return to the growers, as it always commands the highest price of any other fancy Apple in the market. In the winter months they may be seen encircled with various coloured tissue papers adorning the windows of the fruiterers in Covent Garden Market."

Names of Fruit (*W. H. Deane*).—The Grape is White Frontignan.

Names of Plants (*J. Williams*).—The plant with large red bracts is *Lycasteria formosa*; the other is *Bocconia frutescens*. (*Trifol*).—The specimen was very much crushed, but appears to be *Malva moschata*.



POULTRY, PIGEON, AND BEE CHRONICLE.

THE ADVANTAGES OF AUTUMN CULTIVATION.

(Continued from page 104.)

THE next point to be considered is the autumn cultivation of Potatoes, and in this case it will be the same as before stated for Lent corn, roots, &c., if the land is foul; if, however, it is comparatively clean our practice has been for many years to plough the land directly after harvest. As soon as the lumps of grass commence growing, and can be readily seen, these are forked out and carried away; the land will then be allowed to remain undisturbed until planting time. If, however, a few bunches of grass should appear they may be forked-out before proceeding to harrow or prepare the land for planting. Having completed our remarks as far as the surface cultivation is concerned we must now refer to the ploughing, which should be done by a heavy furrow, making the necessary distinction in the treatment of light or heavy soils. In various northern or north midland counties it is customary to drill or hand-dibble the root seeds on the stetch at 27 inches apart, in which case we advise that the land should be laid into stetches to lie for the winter months, in

order that in the spring they may be reversed, and that the dung may be laid into the furrows before reversing, in readiness for drilling the seed; this refers to the light and dry loams. Upon the heavy soils intended for Mangolds or Swedes the land may require to be worked down and the stetches reversed, and then lay out the dung, to be buried by the last reversal of stetches, and by this means the land will be brought into a light loose state, so desirable for root cultivation. It will, even on heavy land, not always be necessary to reverse the stetches the second time in the spring if the land is placed in stetches by steam power, as advocated by Mr. Smith of Woolston, whose system of management of heavy land is deserving of the home farmer's attention. By driving the tackle through the soil and leaving it on the surface like rubbly coal or limestone, after having been exposed to the alternations of winter weather, the dung may be laid out between the stetches or artificial manure strewn over. The land will then, after reversing the stetches and having laid hollow and dry during the winter, be found in a fitting state to work fine enough to receive the seed in the best condition.

We will next consider the best method of treating the land during winter when intended to be cropped in the spring with Lent corn or pulse. Again we shall have to recommend some difference in ploughing light and heavy soils. We will consider the light soils first, because these will generally be cropped with Barley or Peas. If for the former crop the land may be deeply ploughed and allowed to remain undisturbed during the winter months until the seed time. If the winter has been wet and the land lies close and cold it is often necessary to employ Coleman's scarifier, followed by the harrows and roller until the finest possible tilth can be obtained. If the winter has been dry and frosty, dragging, harrowing, rolling, &c., will be sufficient to produce a good tilth adapted for the successful cultivation of Barley. Bear in mind, however, that as no time can be stated for commencing to work the land it should not be undertaken until the land is white and dry upon the surface, after which the sooner the seed is drilled the better. We deprecate entirely any spring ploughing, as being not only an unnecessary delay of the seed time, but in dry harsh weather it has often resulted in the seed not vegetating with regularity. For Peas, however, we recommend the reverse, and the early sorts cannot be drilled too soon, for on the first suitable date the land must be ploughed and drilled, in order that rain or night frosts may not intervene, and it is also necessary because Peas, Vetches, &c., always succeed best upon a fresh furrow.

Heavy land usually cropped with Oats or Beans should be ploughed with a deep furrow to lie during the winter in ridges of such size as is usual in the district, and the land being properly water-furrowed and well cleaned, so that it may lie high and dry during winter, in order that the land in the spring may be planted with Beans as early as possible. If allowed to lie on the bare furrow during the whole winter the land can be worked early in the spring, and the seed should be drilled at once, for the early sown are the likeliest to escape the black aphides. Sometimes we have known the seed hand-planted in every other furrow, and the land ploughed with a shallow furrow just sufficient to bury the Beans. This plan is only advisable when the soil is very stiff and difficult to work, for we have seen the Beans germinate well, and frequently succeed much better than by drilling or hand-dibbling. The same method is recommended for the Oat crop, but we do not advise sowing Oats too early upon heavy cold land, preferring to wait until the land is white on the surface, and then drill after working the land sufficiently to obtain a fine tilth.

We may now refer to the autumn tillage of Clover or Saintfoin leas, for in these much Couch and Lop Grass is often found, particularly upon those fields when previously under a fallow; and with an adverse season like 1789, when it was quite im-

possible to clean any land during the whole year. If the lea grounds are intended for Wheat the same season it is especially desirable not to move the land deeply, because it would be too light, therefore in disposing of the couch before ploughing the surface of the soil only should be moved by the strongest scarifier. There should be some difference in the treatment of a Saintfoin lea compared with a Clover lea, for there is probably no better or cheaper way of preparing the Saintfoin lea for the next crop than by paring and burning. If Clover lea was burnt the value of the Clover roots would be lost, therefore the less labour that is bestowed on removing the couch before laying out the dung the better.

In reference to the comparative advantages of autumn cultivation in contrast with spring tillage there is first of all a much greater certainty of a given number of days being secured for tillage in the autumn than in the spring, because as soon as open weather commences the seed time has arrived. To this point we call the attention of the home farmer particularly, as it is impossible to do in the spring that which can be easily done in the autumn, although there are some days in the most favourable autumns on which the land can be cleaned, yet the employment of steam power renders it possible to perform much work which cannot be accomplished by animals, in consequence of the limited time at our command. We shall not therefore attempt any comparison between the cost of steam power and that of horses, because the former is quite possible in ordinary seasons, whereas the latter is impossible without disturbing the whole work of Wheat sowing, green-crop seeding, &c. We here repeat our firm conviction that after autumn cultivation has been effected, or in fact under any circumstances, nothing proves so injurious to the root crops as various ploughings in the spring, the land not only losing moisture but firmness also, both of which are necessary to successful root culture.

WORK ON THE HOME FARM.

Horse Labour.—In some instances the sowing of Turnips will still be unfinished, but the sooner it is done now the better. Ploughing the land and planting Thousand-headed Kale or dwarf Savoy Cabbages will be advancing according to the requirements of the stock on the farm, as well as the production of vegetables to be sold as the food of the people. The dwarf Savoy Cabbages may be made a profitable crop upon farms near a town for sale in the early spring should it not be required as food for the stock on the farm. It will always be desirable in the future to grow such root and vegetable produce as may be consumed upon the farm or sold as food, a system upon which we acted on our farm thirty years ago, and can therefore recommend it with confidence to the home farmer. The value of vegetables, too, is much greater now than it was at the period named, for strictly speaking the supply of vegetables, fruit, &c., is not at all adequate to the requirements of the inhabitants in towns. In some districts the hay clearing in the low-lying or water meadows has not been finished, for considerable hindrance to the making, carting, and stacking has been experienced in most of the late districts up to the time we are writing, and it is to be feared that it may interfere with the harvesting of early crops, such as winter Oats, early white Oats, Rye, Peas, &c. In the early districts of the south and eastern counties of England the above-named crops will be cut, thus employing some of the horses with the reaping machines; and generally speaking it is severe work for the animals, especially as it is desirable to make long days. It is necessary to work the horses in relays, by working each pair not more than four or five hours in succession. The reaping and tying harvesters have now been greatly improved, and the result of the trials and contests under the auspices of the Royal Agricultural Society of England at Carlisle has established the practice of tying the sheaves with string or yarn instead of wire, which was previously considered necessary in binding and reaping machines.

Hand Labour.—When the weather is favourable not only the work connected with the cutting of the crops, such as Peas, second crops of Clover, &c., will be pressing, but the growth of all late-sown Turnips has been so very quick and luxuriant that the hoeing by hand or singling must be done, or the ultimate crop will be seriously injured. We recommend the plan which we have frequently adopted under similar circumstances—that is, by working the horse hoe across the lines with the shares placed for leaving the plants in bunches, which prevents the plants becoming stunted; singling may proceed by hand labour only by women if men are not available through the urgency of other work. Our adjustment of the shares or knives of the horse hoe is to retain the foremost or centre share in its usual position, and reverse the two side knives by turning them outwards with a space between them sufficient to leave the roots in bunches of the right dimensions. This is easily done in a season like the present, when the plants are thick in the rows. If it is intended to grow stubble Turnips arrangements must be made both for the manure to be drilled and the women appointed to remove the sheaves or pooks of corn or pulse, so that the ploughing and sowing daily between them may be done, and thus two-thirds of the land may be seeded before the corn is carried. The result of this plan we have proved for many

years is a double weight of roots as compared with any portion left unsown until after the crop is removed.

The home farmer, where he has the care of a breeding flock, must now turn his attention to the scouring of rams of good quality, and in accordance with the flock under his management. Whether the stock are Hampshire or West County Downs, or Cotswolds, Leicesters, or any other breed, it is essential to take the first opportunity and thereby secure the best animals which are necessary for propagating the breed he has in charge. If the stock required upon a home farm is for grazing or winter feeding for mutton, this is a good time for selecting animals best adapted for the purpose. The lambs may now be shorn and made out as fat tegs. The breeding ewes for making early lambs should be dipped, for in the enclosed districts they will be quickly struck by the fly, producing loss of wool. By this time also the rams will be running with the ewes, and care should be taken to have the rams ochred so that each ewe as served should be marked, and if necessary may be removed for inferior feeding if high feeding has been adopted for the purpose of early breeding. All the yearling off heifers in the pastures should run together, and have a well-bred young bull of the same age and of the required breed turned in with them, so that the calves may be expected to fall just when the earliest grass is at the best—during the early part of the month of May. We find the price of sheep is rather higher than last year at this time, and the sale for store cattle very dull, particularly for the general run of the Irish imported stock whether of steers or heifers. Dairy cows and early calving cattle are selling well, and are likely to pay well this year in the hands of home farmers who are competent managers of a herd of dairy cows.

BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES ASSOCIATION.

At the Council meeting of the Society held at the Grand Hotel, Bristol, on Tuesday last, the chair was taken, in the unavoidable absence of the President, by H. G. Moysey, Esq. There were also present Messrs. Jonathan Gray and J. C. Moore-Stevens (Vice-Presidents), C. T. D. Acland, J. D. Allen, E. Archer (Colonel), H. J. Badcock (Treasurer), J. C. Best (R. N.), C. Bush, R. H. Bush, V. P. Calmady, F. E. Drewe (Colonel), T. Dyke, Charles Edwards, Walter Farthing, A. Gibbs, F. Gill, J. E. Knollys, R. Lang, R. Marker, R. Neville, E. J. Sanders, Sir John Shelley, Bart., A. Stanford, and J. Goodwin (Secretary and Editor).

A letter was read from the Most Noble the Marquis of Abergavenny, thanking the Society for his election as President for the ensuing year, and expressing a hope that his year of office would be one of prosperity and success.

Mr. Charles Edwards, as Chairman of the Finance Committee, brought up the quarterly statement of accounts; and the cheques which had been drawn for the payment of prizes and other disbursements in connection with the recent meeting, were sanctioned by the Council. It was also reported that so far as it was at present possible to make an approximate estimate, the probable loss on the year's proceedings would amount to £1000.

Mr. Charles Edwards, in the absence of the Chairman of the Stock Prize Sheet Committee, asked for the amount of £2070 for stock prizes at the Tunbridge Wells meeting, which was granted by the Council.

The sum of £200 was granted for poultry prizes at Tunbridge Wells, Mr. G. Herbert Morrell repeating his offer of £6 6s. for prizes for Langshans.

The amounts voted for the several departments of art, music, and horticulture at Tunbridge Wells were the same as at the last meeting of the Society.

The Stewards and Officers for the Tunbridge Wells meeting were appointed, subject to their written consent to act.

Mr. Knollys reported that he in company with Mr. Jonathan Grey had inspected the ground offered by the Local Committee at Tunbridge Wells for the trials of implements. The Committee had afforded every facility, and had been most willing to comply with the requirements of the Society; and, subject to certain arrangements which had been easily made, the Stewards had no hesitation in approving the ground offered as admirably suited for its purpose. The Secretary also announced the payment by the Local Committee of the £800 due from them in accordance with the regulations; and the Council resolved that a special letter of thanks be written to the Local Committee for their promptitude and courtesy in carrying out the suggestions and requirements of the Society.

A communication from Mr. W. Stanford of Steyning, suggesting that a class for yearling agricultural colts should be added to the stock prize list, similar to that for yearling fillies, was referred to the Stock Prize List Committee.

A letter from Captain Sherston, suggesting plans for the improvement of the show of horses at the Society's meetings, was also referred to the same Committee.

TOY PIGEONS—THE ARCHANGEL.

THIS is a peculiar and gorgeous breed. It is not an old one, or at any rate has not been very long known to English Pigeon fanciers. The first mention of it which we have seen is in the "Dovecote and Aviary," published about thirty years ago. The

description there given can hardly be improved upon. "The colouring of these birds is both rich and unique. The head, neck, and fore part of the back and body is chestnut or copper colour, with changeable hues in different lights. The tail, wings, and hinder parts of the body are of a sort of blue-black; but many of the feathers on the back and shoulders are metallic and iridescent, a peculiarity not usual in other domestic Pigeons. The chestnut and blue-black portions of the bird do not terminate abruptly, but are gently shaded into each other. There is a darker bar at the end of the tail. The iris is very bright orange red; the feet clean and unfeathered and bright red. Archangel Pigeons have a turn of feathers at the back of the head, very similar to that of the Trumpeter, or to Aldronandi's woodcuts of his *Columba Cypria*. It is the colouring rather than the form which so specially distinguishes them. Their size is very much that of the Rock Dove." The author states that the variety was, when he wrote, rare, and that it existed in the then famous Knowsley aviaries, from which he had a pair; we, too, in childhood had a pair descended from the same stock. It is true that "distance lends enchantment to the view," and that youth clothes all that pleases it in the most glowing colours; still, making allowances for this exaggeration, we feel sure that these birds were of surpassing brilliance, and such as are seldom, if ever, now seen. The coloured part of their plumage was the most brilliant copper colour, not purple nor sandy, and the black was really and intensely black. They were plain-headed—i.e., without peaks, and we well remember being shown by the donor of them a point-headed bird as something abnormal. Our pair turned out two cocks, and the strain came to an end. Their beauty, however, lingered in our recollection, and years afterwards we saw a pair advertised by a then successful exhibitor; we bought them, but great was our disappointment at the arrival of a pair of comparatively speaking dingy creatures. They, too, turned out cocks, and it seems a peculiarity of the breed that two cocks are very frequently reared from one nest, and that it is extremely difficult ever to obtain a really good hen.

Archangels are hardy and prolific. One of their great charms is their elegance and activity on the wing. Since these former failures we have procured and bred many of various types and excellence, and have found them invariably good breeders and parents. We delight in watching them ever flitting from gable to gable, bowing and playing in the sun, and then swooping down to their house again. Archangels are no longer a rare variety, but the many are mediocre and very few good. The difficulty of procuring and breeding them good seems to be caused by this:—There are several sub-varieties varying in colour; these have been much crossed, hence we never know the exact result which a union will produce. The chief points of excellence are that the copper colour should be as bright as possible, and the black really black; this latter is very difficult to attain, we might almost say impossible. Poor birds are a dingy blue, or blue and copper, when they should be nearly black; such birds should be killed, but not hastily, for all Archangels are very dingy during their first six months, and cannot be called brilliant till they are fully a year old. An experienced eye can, however, soon detect on the neck and back signs of brilliance to come. In some strains the copper-coloured part is more purple, and in such the back is very brilliant like the breast of other Pigeons, but the black portions are apt to be dull, and the colour, too, of the heads dull, which is a great fault. Others, again, have quite yellow heads and breasts, and these if glistening and not sandy are valuable for breeding. When mated with a rich purple bird they often produce birds of the very brightest sheen and colour. To our taste a copper colour inclining to purple is the most perfect type; when this extends evenly all over the head and quite down to the thighs, and when the black parts of the body are really nearly black, the bird is of great value and extreme beauty. A flight of such is not to be forgotten. In one point we slightly differ from Mr. Dixon, the author of "The Dovecote and Aviary." He says that the black and copper should shade gently into each other. In all the best Archangels we have ever seen they have been well defined. We have had good Archangels with pearl eyes, but quite agree with the above description, that their eyes should be bright red, which seems to agree best with their general colouring. Their feet are of a brighter red than those of any other Pigeon we know. A peak to the head is now almost *de rigueur* in the show pen. Whence the derivation of their strange name? We have been asked this dozens of times. We well remember the horror of a visitor once staying with us when a servant quietly announced, "The cat has run off with an Archangel this morning!"

We formerly thought that they had probably been first brought to these shores by an Archangel merchant or ship. A correspondent ingeniously suggested some time ago that their name

had perhaps been given to them from the similarity of their colour to that of various great Italian pictures of the Archangel Michael. There is much plausibility in this suggestion. Breeds of similar colouring certainly exist in the aviaries of some of the great oriental Pigeon-fancying potentates. When introduced to Europe they would very likely have first come to Italy. In Transylvania and the Tyrol they are still common.

The nomenclature is, however, only of secondary interest; it is undoubtedly a most beautiful breed, and one which we can recommend to young fanciers almost more confidently than any other. Archangels give no trouble, they invariably make good nests, and do not leave their eggs to tumble about on the boards or on the ground as some Pigeons do; we have never, too, known them to forsake their young ones. We should add that self-coloured Archangels, specially blacks, are sometimes shown. We have ourselves this year bred a purely yellow bird—i.e., yellow all over without a dark feather, from a dark pair inbred. We do not, however, admire any of these birds, and consider the two rich colours the chief beauty and characteristic of the breed.—C.

VARIETIES.

THE PEACH BLOW POTATO.—The American correspondent of the *Irish Farmers' Gazette* writes as follows:—Our best standard Potato at present is the Peach Blow—a fine, large, smooth, sound Potato. I have raised them for years. A new variety came to the front lately, and were very highly spoken of—the white Peach Blow. They were as fine Potatoes as I ever eat—as dry as the original Peach Blow, more uniform in size; but their white smooth skin gave them a higher stand in the market, and they were eagerly sought after by the shippers. I bought some and determined to try a crop of them. I planted an acre of them under very favourable circumstances; alongside were dropped a couple of rows of the red Peach Blow. When they came up over two-thirds of the seed of the white Peach Blow were a failure, whereas every set of the red Peach Blow produced a vigorous plant. Now, it must be borne in mind that the flesh of the red Peach Blow is as white and floury as the white; indeed, they resemble a good deal the old favourite kind the Apple as much as any Potato I can think of. We have a vast variety of Potatoes grown here, but the favourites are the Peach Blow, Snowflake, Early Vermont, Early Rose, Champions, &c. Each of these varieties varies considerably in the localities and different soils in which they are planted. I suggest to Irish farmers that they send over here and have a few barrels of our Potatoes selected and sent over to be tested as to their quality, and if considered favourably any amount of seed could be procured from the St. Louis market. The price of Potatoes here last fall ranged from 30 to 40 cents per bushel, or about 4d. to 6d. per stone; this spring and summer they could have been sold from 3d. to 4d. per stone (market down). A change of seed like this I believe would lead to the best results.

— **AYLESBURY DUCKS.**—They are reared annually in enormous quantities in and around the town of Aylesbury, and it is not uncommon to see a ton weight of ducklings of six to eight weeks old sent in one evening to London by rail from the town and neighbouring villages. The trade for them commences in February and lasts till about the end of July, and during all that time it is difficult to keep up the supplies to meet the great demand. The birds are generally killed when six weeks old, at which time they weigh about 3 lbs. each, and they realise prices ranging from 9s. to 21s. a couple as the season advances. After Ascot summer meeting it is always noticed that the prices rapidly fall. The bulk of the rearing is done by cottagers, who make a good living by the process, and many save considerable sums of money. It will surprise many, perhaps, to hear that upwards of £20,000 a year is returned to this immediate neighbourhood for Aylesbury Ducks alone. It is a curious sight to see the cottages of the "duckers," as the breeders of them are called, during the spring, when they have the youngsters in every room in their house, from the kitchen to the bedroom, and their clamour when feeding-time approaches is terrible. The birds intended for market are never allowed to go into water, and often are not even permitted to go out of the purview of the dwelling-house till they are killed. Their food is at first eggs, boiled hard and chopped fine, mixed well with boiled rice, and this is given

to them several times during the day. As they grow, and are capable of consuming more, they are fed upon barleymeal and tallow greaves, mixed together with the water in which the greaves are boiled.—(*Cassell's Illustrated Book of Poultry.*)

— THE PRACTICAL TREATMENT OF SEWAGE.—A correspondent informs us that “last week a party of 140 gentlemen visited the sewage works of the Native Guano Company at Aylesbury. A series of demonstrations were given, showing the practical working of the A B C system, with which considerable satisfaction was expressed.”

— HOP INTELLIGENCE.—The plantations are making fair progress, and good-sized Hops may be seen in the earlier descriptions. The later sorts have thrown out strong laterals, which are fast breaking into burr, and the progress of the mould has been to a great extent checked, although in some few grounds it is making sad havoc. The foliage is clean and of good colour. Altogether prospects augur a somewhat large yield, while the quality can scarcely fail to be superior if the weather continues favourable.

— AGRICULTURAL PROSPECTS.—The *Mark Lane Express* of August the 2nd states:—“Prospects this week are decidedly gloomy throughout the country. The continued rains and heavy storms have laid the grain crops, where they are at all thick, on the ground, and the Barleys especially have been greatly injured. As might have been expected from the excess of moisture at this time of year there are now complaints on every hand of mildew, and a ‘blighted appearance’ is very noticeable in many districts. Harvest, which would have commenced during the first week in August, has been retarded by the weather, and the absence of bright sunshine is now working great mischief amongst the grain crops. Some Oats have been cut, but the crop is not well spoken of. Some Peas have also been cut, and, together with the Bean crop, they are as a rule reported favourably. Root crops are making a rapid growth of leaves, but fine weather is needed to enable them to form good bulbs; and the constant rains have given the weeds an insurmountable advantage over the hoe. The hay crop has been irretrievably ruined; one-third spoiled in the field, one-third spoiled in the stack, and the remaining third spoiled before it is cut, as put by one of our correspondents, is, we fear, but too true a statement of actual facts. A large acreage of meadow grass now lies on the ground unfit for anything but litter. From Herefordshire we have accounts of liver fluke amongst sheep to a very serious extent; in other respects stock are reported as healthy, and doing well on abundance of keep.”

— SALE OF SHROPSHIRE SHEEP.—Mr. T. J. Mansell's annual sale and letting will take place at Dudmaston Lodge, Bridgnorth, Salop, on Monday next, August 9th, when twenty-three shearling rams, forty-five shearling ewes, and thirty stock ewes will be offered at public auction by Messrs. Lythall & Mansell. The shearling rams and ewes are principally got by County Member (winner of first prize at the Exeter meeting of the Bath and West of England Show; first prize at the Shropshire and West Midland Show, 1879, and champion prize for the best ram in the yard; first prize at the Worcester meeting of the Bath and West of England Society; and first prize at the Shropshire and West Midland Show, 1880) and Pride of Montford, a ram bred by Mr. Minton, by Calcot, and the sire of Dudmaston Hero (winner of first prize at the Worcester meeting of the Bath and West of England Society; first prize at the Shropshire and West Midland Show; and champion prize for the best ram in the yard).

PURELY MATED QUEENS.

SINCE the introduction of Italian bees much effort has been put forth in the endeavour to have the young Italian queens mated with pure Italian drones, resort being had to attempts at fertilisation in confinement, isolating the queen, rearing stocks on islands and other out-of-the-way places, and a common plan being to dispose of as many of the black queens and drones in the vicinity as possible. Much money and labour have been expended in these directions with not always satisfactory results, and it is out of the reach of a large majority of bee-keepers to obtain purely mated queens in these ways; hence they have to run their chances by raising as many pure drones as they can in their own yard. This will go a great way towards the desired object, but we can

still add much more that is within the reach of all bee-keepers. But we will begin back at the start and see how best to accomplish this. The time taken to raise a queen from the egg to hatching is sixteen days, but they are many times raised from eggs already hatched as workers before the bees take them to raise queens of; hence some queens are hatched in eleven or twelve days. These young queens usually do not make their fertilising flight under five days old, and we should have had plenty of drones flying from our best Italian stocks by the time these young queens are ready for their bridal trip. Drones and young queens usually fly from one to three o'clock in the afternoon. Now we want to get the start of these black and hybrid drones if we can, so about half-past ten or eleven o'clock in the forenoon we will go to our stocks containing young queens of the right age, and also to our pure Italian stocks from whose drones we wish to breed, take off the caps of the hives, then the quilt or honey board, and thoroughly sprinkle each stock with very thin warm honey, or a like mixture of sugar syrup, and close the hives at once. In a very few minutes the air will be filled with bees, drones, and young queens (if of the right age) rushing out of the hives like a pack of schoolboys at recess, and making about as much noise too, the worker bees to hunt around for that inflow of warm honey, thinking perhaps that the flowers have got tired waiting for the tardy bees, and are bringing it to the hives, roots, plants, honey and all; the drones and young queens hearing the noise want to know what it is all about, and come out to have a “finger in the pie” too; and as there are but few drones flying at this part of the day your chances for purely mated queens are tenfold greater, and too, with drones raised from the most prolific queen, whose bees are the hardest workers. This plan followed up day after day till all the young queens are mated will well repay all extra trouble in bringing it about.—WM. M. KELLOGG (in *The Prairie Farmer*).

THE BRITISH BEE-KEEPERS' ASSOCIATION.

FIRST NOTICE.

IN now giving an analysis of the Exhibition of this Association our object will mainly be to direct attention to those novelties which in our opinion may be hoped to hereafter contribute to the comfort of the bee-keeper and the productiveness of the bee. The schedule was divided into thirty-six classes, and drew together 220 entries; but this number hardly represents the total, since in hives the Committee had stipulated that duplicates were to be shown prepared as for summer and winter. The show of honey, as we remarked last week, was of wonderful quality, and the whole Exhibition a decided success.

Class 1, stocked frame hives, two exhibits, neither possessing anything very noteworthy. No. 1 had in front a moveable grating for preventing the blue tit from feeding on bees in winter. This is of course old. The surplus boxes were placed around the stock. The next three classes contained good Ligurian, Carniolian, Cyprian, and Holy Land bees. The two latter attracted most attention, because of them we know the least, and many will say of the last “the less the better” when they know their tempers. Class 5, observatory hives, two entries. Mr. Abbott (silver medal) showed a considerable improvement upon his observatory of last year, which was then crude and unsatisfactory. The hive consists of an oblong box of plate glass, the length of which is considerably greater than the contained frames require. The roof of glass does not rest on the sides, but between the two; there is an eighth of an inch space through which the frame ears, made of tin plate, pass. Handling these we can slip the frames backwards and forwards the extra length of the hives. Such was the arrangement last year, but we have now an addition which makes a new thing of it. The glass roof, instead of being in one, consists of strips running the way of the frames, and between these strips we have again one-eighth of an inch space. On the top of the frames are three eyes placed in line near its centre, and a tool is provided not unlike a bradawl, the blade of which has been bent to a right angle near its middle. The frame to be examined is pushed until it stands immediately beneath a roof slit; the tool is now passed through the eyes, and becomes a pivot on which the frame can be revolved, and when parallel with the hive side it can, by drawing the tool along the slit, be placed against the glass and inspected. It does not appear to us that plate glass is essential on more than one side, wood replacing the rest, and so reducing cost. Mr. Scott (bronze medal) staged a hive consisting of frames and bees in separate cases with glass sides, sliding in close contact on a lidless box. The separate cases have no bottoms and do not touch the floor, so that bees can pass from one to the other while heat is economised. Class 6, best hives.—Messrs. Neighbour were placed first with a hive having a straw crown board in three pieces, while its principal feature is a plan for preventing or passing round frame ends during winter. The frames must be removed, and afterwards placed across the hive for the purpose. Second was Mr. Abbott with a section crate as an overhead traveller, a plan which would, we think, hardly work. Third Mr. Holland. The section crate has permanent separators—a considerable defect, as

comb once attached to them would always after cause trouble. The side dummies and chaff box are good. Mr. Clapp was commended for a very convenient hive, the frames and body proper of which are in all respects the Cheshire hive of 1874. It has a quilt, which is neatly held in position by hinged strips.

Class 7, hives for general use limited to 15s.—Mr. Green was first with a well arranged hive, which has two thin division boards standing against its sides when all the frames are in use. For wintering some of the frames are removed, when the division boards are drawn towards the cluster. Brads are fixed in the hive front and back, which project so little that they do not prevent the movement of the frames, but they act as stops for the division boards, between which and the hive sides chaff is placed. The door is neatly regulated and a porch provided. The crate box above becomes the chaff box for winter. Mr. Hooker took second honours with an excellent hive having mouth side and front, so that turning the hive a right angle will change from one mouth to the other according to season. The super case opens to the perpendicular, giving convenient staging whilst manipulating. Mr. Hooker showed this hive in the flat with all parts ready to nail up, and again in plank with every piece set out. No. 19.—Mr. Holland had a lid in central part of super case to admit of chaff filling for wintering. No. 18.—Mr. Abbott had a novel super case and is good for the money. In Class 8 the efforts of cottagers to construct hives from beef boxes, lobster boxes, &c., were conspicuous, and fully prove that fairly convenient and thoroughly useful frame hives may be made by those having a little mechanical tact for about 2s. 6d., or even less. The prizes for supers fell to Messrs. Green, Hooker, and Clapp. Mr. Green, instead of the usual wooden strip passing under the section box and resting on the hive frames, introduced one of tin, T-shaped, in sections, which is a quarter of an inch over the hive top. This saves both in propolis and in risk to bees, and is a decided advance. Mr. Green gave us thumb space between boxes, and here Mr. Hooker was before him. We think the best combination would be the wooden bearing for the separator, with wider tin plate beneath to give a resting-place for the boxes. In this we should have the advantage of the two. Mr. Green tightened up the crate with a lock spring.

Honey was nearly all of finest quality and appearance, and the Judges must often have been puzzled. Class 11.—Mr. Warren showed 147 boxes, and Mr. Thorne forty of magnificent stuff, while Rev. E. Bartrum came third with three beautiful Stewarts. No. 49 has been left too long on one hive, as the capping was unduly thickened. In Class 12, mixed supers, the straws were far behind the rest, a fact which speaks loudly against fixism. Mr. Thorn stood first, but we think he ought to have been disqualified for entering in the wrong class; Mr. Dunman third, and Rev. E. Bartrum fourth, we should have reversed. Class 13.—Rev. J. G. Jenkyns showed a beautiful super, 36 lbs. nett. Mr. Scott's glass was artistic. Classes 14 and 15.—Thirty exhibits, all excellent, Mr. Cowan sending 48 lb. sections in glazed packing cases, which only secured third place. Class 17, extracted honey, contained no sample that was unworthy of commendation. The conclusion of the analysis must stand till next issue.

OUR LETTER BOX.

White Grubs Carried out (*Amateur, Warrington*).—Remove your super at once or your bees will take the honey down into the hive. The carrying-out of immature bees is a proof that the storing of honey has ceased, and that the bees are anxious to get rid of the drone grubs that can never be of any future service to them.

Dwindling Stock of Bees (*A Yorkshire Bee-keeper*).—We fear something must have happened to the queen of the stock which you describe. This most likely occurred in the early spring, and the bees seem to have raised another queen who has not turned out well. As you and your friend could see nothing of her with all your careful searching it seems not improbable that the hive had only a fertile worker in place of a proper queen, especially as you mention drones among the few surviving bees. Starvation in the early spring may have had something to do with the failure. We have had a dwindling swarm this spring of which we almost despaired, but it took a sudden turn in May and has wonderfully recovered. Warm weather and abundant honey in the flowers were its only cure. We advise you a little later, if the comb is fresh and good, and you think it worth while, to add to it the population of two or more stocks rescued from the sulphur pit, and to feed them up well at the end of August and through September.

Removing Bees from a Tree (*John Holliday, Silloth*).—To remove the bees you must first get possession of the brood comb. You will commence operations by driving the bees from their combs by smoke, and as you get portions of these somewhat cleared you will cut them loose and remove them. The honeycombs should have the bees brushed carefully from them, when they may be placed one by one in a pail and covered with a cloth. The combs containing brood will be taken out as they can be reached and placed by themselves after all the comb have been taken; the bees will be found hiding probably in some unreachable recess, but we can yet get them by strategy. The brood combs had better now be skewered together with half an inch space between each on wooden skewers, when the whole will be lifted into the hollow in such a way that it may by-and-by be easily taken away bodily. The bees are now left for the night, or at least for two or three hours. They will as soon as all appears quiet return in company with the queen to their brood, in order to give attention if needed and keep it warm. The combs, queen, and bees in greater part can now at once be taken to the foot of the tree to be dealt with according to circumstances. The queen being present, before long almost all will join. If it is intended to place the dislodged stock into a frame hive the brood combs as taken may be transferred into frames at once if this would not make them too large to stand in the tree-hollow.

Colour Characteristics of Ligurian Queens (*S. Wigston*).—Ligurian queens differ much in appearance, and it is not uncommon to find sister queens

produced at the same time and in the same hive extremely unlike. No queen should be condemned until her progeny has been seen. Some, although quite dark themselves, produce beautiful workers. When first hatched they are generally much yellower than at a few days old; but after this, as the abdomen extends by an increased development of the ovaries, the previously concealed yellow portions of the abdominal rings are brought into view and the general appearance once more brightens in consequence. The queen to which you refer will no doubt from this cause improve both in size and colour. Pure Ligurian workers ought to have three yellow bands, and the brighter these are the more handsome would the bees be considered. If the workers should be found to vary considerably amongst themselves you may conclude that your queen is hybrid. Ligurian queens actively ovipositing are generally somewhat larger than black ones.

Metheglin (*Apiator Vetus*).—You do not say in your letter to whom you refer when you complain of the imperfection of the recipe, but generally it may be stated that the proportions of water and honey are immaterial. The more water and the less alcohol, the weaker the metheglin. The saccharine matter of the honey undergoes fermentation in the presence of the yeast, together with some nitrogenous substances contained in the mixture, and alcohol is the result. The case of ale and wine furnishes an illustration. Weak worts containing little sugar if fermented produce not more than 5 per cent. of alcohol, while sweet Grape juice will yield similarly 25 per cent.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1880.	Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
July.		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.			deg.	deg.	deg.	deg.		deg.	In.
Sun. 25	29.930	65.8	59.0	S.	62.0	79.2	51.6	129.1	43.0	0.426
Mon. 26	30.570	62.5	61.4	S.E.	62.7	73.7	56.4	126.2	56.2	0.496
Tues. 27	29.744	65.3	60.3	W.	62.6	74.6	58.7	131.6	56.7	—
Wed. 28	29.745	64.7	61.0	S.W.	62.9	71.6	59.8	109.4	58.9	0.160
Thurs. 29	29.530	65.8	61.5	S.S.W.	62.6	74.1	59.8	129.6	58.5	0.705
Friday 30	29.583	55.6	54.7	W.	62.1	69.3	53.4	119.4	50.3	0.020
Satur. 31	29.793	60.6	52.3	W.	60.4	70.0	47.5	121.1	45.4	0.090
Means.	29.700	62.9	53.7		62.2	73.2	55.3	123.8	53.4	1.897

REMARKS.

25th.—Fine bright warm day, cloudy evening.
26th.—Heavy rain during the night, close damp day with heavy showers, bright hot sun at intervals, heavy rain for short time 9 P.M.
27th.—Very fine day, hot sunshine, high wind, calm evening.
28th.—Warm dull morning, slight showers, very little sunshine, good deal of cloud.
29th.—Dull morning with heavy showers and high wind, bright sunshine in afternoon, very fine evening.
30th.—Dark rainy morning, showery during the day, sunshine at intervals, gusty wind, rain in evening.
31st.—Cool in morning but very fine and bright, cloudy in middle of day, clear evening.

A very wet week ending a wet month. June and July of 1880 have been even more rainy than June and July of 1879. The following are the figures:—

	1879	1880
June ..	4.76	4.04
July ..	4.17	5.10
Total in two months ..	8.93	9.14

—G. J. SYMONS.

COVENT GARDEN MARKET.—AUGUST 4.

GREEN Plums and Apples are now the main supply of our fruit market, the former showing signs of heavy crops. Grapes from the Channel Islands are now reaching us in large quantities, prices being low. Vegetables are plentiful, with but slight alteration.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Nectarines..	dozen	2 0 to 10 0
Apricots.....	box	1 0 2 6	Oranges	£ 100	4 0 12 0
Cherries.....	£ lb.	0 4 1 0	Peaches	dozen	3 0 10 0
Chestnuts.....	bushel	12 0 16 0	Pears, kitchen ..	dozen	0 0 0 0
Figs.....	dozen	2 0 4 0	dessert	dozen	0 0 0 0
Filberts.....	£ lb.	0 0 1 0	Pine Apples	£ lb.	1 0 3 0
Cobs.....	£ lb.	0 0 1 0	Plums	½ sieve	0 0 0 0
Gooseberries ..	½ sieve	2 6 4 0	Raspberries	£ lb.	0 3 0 6
Grapes	£ lb.	1 6 3 0	Strawberries	£ lb.	0 6 1 0
Lemons.....	£ 100	6 0 10 0	Walnuts	bushel	0 0 0 0
Melons	each	2 0 4 0	ditto	£ 100	0 0 0 0

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes.....	dozen	2	0 to 4 0	Mushrooms	dozen	1	6 to 1 6
Asparagus.....	bundle	0	0 0 0	Mustard & Cress ..	punnet	0	2 0 3
Beans, Kidney ...	£ lb.	0	6 0 9	Onions	bushel	3	6 5 0
Beet, Red.....	dozen	1	0 2 0	pickling	quart	0	0 0 9
Broccoli	bundle	0	9 1 6	Parsley..... doz.	bunches	6	0 0 0
Brussels Sprouts..	½ sieve	0	0 0 0	Parsnips	dozen	1	0 2 0
Cabbage	dozen	0	6 1 0	Peas	quart	0	10 1 3
Carrots.....	bunch	0	4 0 6	Potatoes.....	bushel	3	9 4 0
Capsicums.....	£ 100	1	6 2 0	Kidney.....	bushel	4	0 0 0
Cauliflowers	dozen	0	0 3 6	Radishes.... doz.	bunches	1	6 2 6
Celery	bundle	1	6 2 0	Rhubarb	bundle	0	4 0 0
Coleworts..... doz.	bunches	2	0 4 0	Salsafy.....	bundle	1	0 0 0
Cucumbers.....	each	0	4 0 6	Scorzoneria	bundle	1	6 0 0
Endive.....	dozen	1	0 2 0	Seakale	basket	0	0 0 0
Fennel.....	bunch	0	3 0 0	Shallots	£ lb.	0	3 0 0
Garlic	£ lb.	0	6 0 0	Spinach	bushel	2	0 0 0
Herbs	bunch	0	2 0 0	Turnips	bunch	0	4 0 0
Leeks.....	bunch	0	0 4 0	Vegetable Marrows	each	0	2 0



12th	TH	Taunton Deane Floricultural Show.
13th	F	
14th	S	Exhibition of Cut Flowers and Bouquets at the Alexandra Palace.
15th	SUN	12TH SUNDAY AFTER TRINITY.
16th	M	
17th	TU	
18th	W	Shrewsbury Summer Show ; Thornton Heath Show.

NOTES ON STRAWBERRIES.

LITTLE labour has been needed this season for Strawberry runners after they were layered in pots ; the rain has been so abundant that scarcely any watering has been required, whether the runners were placed in small or large pots. The latter practice I more strongly advocate than ever, and I can produce better plants and more satisfactory results in every way than by the other system. Good fruits are produced under both plans ; yet where the layering into the fruiting pots is carried out no check is occasioned, and attention is only needed to develop good crowns and thoroughly ripen them. One of the strongest objections raised against this system by various cultivators who adopt the other is, that when the runners are layered into the large pots the roots go direct to the sides and leave the soil in the centre without roots. This is not the case. Before autumn the pots are full of roots.

The present is a good time to either layer runners for making new plantations, or potting the runners, placing them in a frame or under the shade of Peach trees in early houses. The latter plan is preferable, and in dry weather watering can be done more readily. It also allows cultivators the opportunity of clearing off the runners that are not required, thus giving the plants that have to produce a crop next year every chance to thoroughly ripen their crowns for the following season. When established in small pots the young plants can be placed out at once, the distance between the rows and plants depending on whether they are to remain for permanent fruit-bearing or for stock next season. Eighteen inches between the rows and 1 foot from plant to plant is ample for the latter purpose. Between the rows Lettuce and Endive can be planted. Young plants are preferable from which to obtain runners ; they are earlier and much more vigorous than from old stools, or from those that have been forced. Some contend that planting young plants purposely to obtain runners for forcing is a waste of ground and labour, but it is surprising what a number of runners a few vigorous young specimens will produce. First, a crop of Lettuce and Endive for winter is obtained ; secondly, an abundant supply of runners, which is necessary where the spring supply of Strawberries is an important matter ; and lastly, the plants can be cleared-off in time for a valuable crop of Coleworts or Little Pixie Cabbage. Forced plants are useful if planted out for affording a crop of fruit the following year, and they will give a better return than runners layered and planted, unless the layering is done early.

Strawberries do not succeed so well upon trenched ground as upon firm solid land, especially if much of the lower soil is brought to the surface. If the ground is trenched and a crop of Potatoes taken, the Strawberries being then planted appear to do much better. This will not apply to gardens where the soil is of a tenacious nature, but in light soils it is much better than newly trenched ground. Sir Charles Napier Strawberry will not thrive on light newly trenched ground, especially if the winters prove severe. In planting this variety a sheltered position should be selected, that is in northern counties, and some little protection afforded to the crowns in winter. It is valuable for forcing, and the fruit is adapted for travelling better than almost any variety. When grown in pots it must be sheltered in winter, or else it will be much injured and prove unsatisfactory for forcing. When cultivators have to deal with light soil it is wise to spread over the surface before winter a good coating of clay, so that the frost will thoroughly pulverise it, and it should then be regularly and evenly worked into the old soil. Clay incorporated with light soil for Strawberry-growing will be found far more beneficial than a thorough dressing of manure. Vicomtesse Héricart de Thury is a valuable variety for light soils, and evidently appears to fruit equally as well as if planted on ground more favourable for Strawberry culture. Under cultivation in pots it succeeds very well potted moderately firmly. It is very hardy, and is not injured in the least if left outside in pots and unprotected during winter. Sir Joseph Paxton, Eclipse, Underhill's Sir Harry, and British Queen have also been tested by leaving them out unprotected ; their roots have kept in good condition, and the plants have forced well. They have started into growth more freely than if kept in Peach houses, vineries, or frames, and frost excluded. British Queen is a most unsatisfactory variety with me on a light soil, and I have hitherto failed to grow it well in pots. When it is well known that severe weather will not injure the roots of Strawberry plants in pots it will be a great advantage to many gardeners to be able to leave them outside, so as to set their frames at liberty to be occupied with Lettuce and Endive where winter salads are required in quantity.—WM. BARDNEY.

CURRENT TOPICS.

THE POTATO DISEASE.—I do not think the remarks which have lately appeared on the disease of the Scotch Champion will have startled anyone who has grown this variety for several seasons and watched the course it was taking. Up to the season of 1878 it was free from disease with me and about here ; but last season, although not affected so much as many varieties, it was diseased to a certain extent, and this season it appears to be going as fast as most varieties. I have observed this to be the case with many new Potatoes. When they were introduced they were able to resist the disease, but this gradually gained on them until they had no claim to be regarded as disease-resisting, and this, I fear, is the case with the Champion. One would gladly believe that the remarks of "W. B. W." (page 110) about selecting the best tubers for seed is the surest way of keeping up the disease-resisting constitution of the Potato, but even this has failed with us. For two or three seasons I have selected the very largest tubers I could obtain for seed of International Kidney, Red Emperor, and others, some of the former being over three-quarters of a pound in weight when placed in the ground this spring, and more than

half of the produce from them is destroyed by the disease at the present time.

I cannot agree with the writer who follows "W. B. W.," and asserts that "about one-half the losses by the disease arises from want of knowledge and apathy on the part of the growers." What this want of knowledge in Potato growers may be it is hard to understand. I know many gardeners, farmers, and cottagers who in this and other seasons have given the best part of their knowledge and personal attention to the Potato crop, with the result that half the crop or more was lost. In my opinion the weather alone rules the state of the Potato crop. No disease was visible here until after some days of wet weather about the beginning of July, and since then it has rained almost daily, and what promised to be an extremely fine Potato crop has been utterly ruined.

SCALDED GRAPES.—The timely and thoroughly practical remarks at page 109 from Mr. W. Taylor can hardly be too often repeated or confirmed at this season, when neglectful ventilation may more than half destroy what might be fine winter crops of Grapes. I find that moisture condenses much more freely on Grapes in cool houses than where fire heat is employed, and if the ventilators are closed all night it is most difficult to prevent moisture collecting in the morning. Allowing the ventilators to remain open all night at the top of the house will not keep down moisture. Air must be admitted at the front also to keep up the circulation. This brings me to confirm what Mr. R. P. Brotherston says on this matter at page 118. To leave the ventilators open top and bottom at all times is the right way to secure well-finished Grapes. I never read any remarks on the management of Vines in which I could so thoroughly concur as those. Last year many doubts were expressed about the correctness of my ripening Grapes in summer without fire heat, the favourable climate here being the only excuse for it; but surely if the same thing can be accomplished in East Lothian it might succeed in many other parts. It is very satisfactory to see the way in which Grapes, especially Black Hamburgs, colour during July, August, and September in a house without fire heat. Let me therefore advise your readers who are interested in the matter to practically test Mr. Brotherston's system, and I am sure they will be more than satisfied with the result.

THE CELERY FLY.—No season passes without many complaints against this insect being made, and from experience I know it is troublesome enough; but with this, as with all other insects, the best way is to take it in time, as it is easier killing a dozen than destroying thousands. Salt is one of the best manures which can be applied to Celery at any time, and there is nothing better for killing the fly. When mixed with soot and sprinkled on the plants when the leaves are moist, on the first appearance of the fly, no further damage will be done.

SUCCESSIONAL CROPS.—At the present time, when many long rows of our midseason Peas are being cleared off the ground, we lose no time in hoeing and cleaning the ground, Turnips and Spinach being sown on the place at once. It is now too late to plant greens to come in well in either autumn or winter, but it is just the time for the above two crops, and they will be found most useful during the winter.—A KITCHEN GARDENER.

THE POLYANTHUS.

MUCH discussion has arisen whether the Polyanthus has been produced from the Cowslip, and from a careful examination I have no doubt it has. This spring I saw a large Cowslip in a cottage garden showing evident signs that it was struggling to emulate and take its place amongst the Polyanthus.

It is now seventy years since I commenced growing Polyanthus, and I remember a few I then cultivated which time has banished from our gardens. The earliest was a variety called Faulkner's Black Prince. It was particularly high in colour and nearly destitute of symmetry, and no doubt was cherished on account of its colours. It was used as a show variety for a few years. A passing notice of Faulkner as a florist will not be out of place. He commenced growing flowers before the year 1800, and I knew him personally from my beginning as a florist. As an amateur or professional he was considered superior to any in England. His enthusiasm was unequalled, and he travelled into

Russia, Germany, and Holland in search of novelties; and the Lancashire florists, who reigned supreme at that period, are indebted to him for their character as florists. It was as late as 1830 that the south began gradually to creep upon us, and in a quarter of a century threw Lancashire in the shade. Another early variety was Tantarara, which soon became extinct.

As my short notice on Polyanthus was only a sketch I presume that further particulars will be acceptable to the readers of the Journal. The Polyanthus as a spring flower generally makes its appearance when the garden is, comparatively speaking, destitute of that brightness which it afterwards assumes. The plants by many are considered difficult to grow. This is a mistake, as they need but little attention beyond that of providing a suitable moderately shady situation for them. The Polyanthus cannot bear severe frosts, and the amateur will do well to protect the plants with a frame, giving them all the air possible during the winter months. In summer a copious watering late in the evening will prevent that formidable enemy the red spider from destroying the collection. The Polyanthus likes a strong soil, and yet not a clayey one; and if a little peat were mixed in the compost it would add much to their healthiness. In spring loosening the earth with a small hand fork and applying a top-dressing of old manure would make the blooms attain a large size. Emmerton, a noted florist in past years, gave many descriptions of compost, but the best of all is to study the nature and habits of the plant in its original state, and then no amateur will err.

The properties of a fine Polyanthus are as follows:—The stem ought to be strong, elastic, and erect, of such a height that the truss may be above the leaves of the plant. The footstalk should be stiff and of a proportionate length to the size and quantity of the pips, and not less than five in number, that the truss may be close and complete. The pipe, tube, or neck of the petal should rise above the impalement, be short and finish fluted in the eye; the anthers should cover the neck of the tube—that is what is called by florists a thrum eye; when the style shows its stigma above the anthers this is called a pin eye, and is rejected by all modern florists let its properties be ever so good. The tube should be round, of a bright colour well filled with anthers bold and distinct. The eye should be round, of a bright clear yellow, the same colour as the ground. The ground colour or body should be dark resembling velvet. There are also some which are red in the ground and possess all the properties of the dark-coloured; these varieties are not esteemed by florists. The dark forms certainly look richer, but yet if all the other properties are correct I cannot see why they should be despised, as they form a contrast to the others. The pips should be large and of rich and lively colours, and every pip ought to be of one size, lie flat and smooth as free as possible from ridges or fluting, and consisting of five or six heart-shaped segments. The lacing and the eye should be all the same shade of colour, and go perfectly round each petal and down the centre of each division of the limb to the eye, and should the edging not extend to the centre of each division it is a great defect.

Polyanthuses are generally repotted at the latter end of July when the weather is showery, and the plants are then divided and the tap root shortened, also they should be well shaded, supplying water only when they appear to require it. They require protection from inclement weather until March, when they may have the advantage of gentle showers. Those amateurs who grow for exhibition must thin the flower buds when they have sufficiently risen from the foliage, leaving one or two more than the number required, preserving the outermost.

In order to obtain good seed, and such as is likely to produce good varieties, you must plant some of your best varieties in a shady border any time in the autumn or early in the spring. In warm and dry weather these plants should be watered every other evening. When the seed vessels begin to open the watering should be discontinued, the seed is then nearly ripe. At this period the plants should every day be examined, and such heads as appear quite brown with their vessels opening should be gathered, otherwise the best seed will be lost. The seeds being thus carefully collected should be spread upon paper in a warm room, taking care that they are perfectly dry before they are sown, which must be done early in the spring in a cold frame, and cover them slightly with earth, and do not allow the soil to become dry. Many cover the soil with damp moss until the seed appears to be vegetating.

In the following remarks it will be seen how little has been done for nearly sixty years for the improvement of this beautiful flower. In 1821 the only Polyanthus exhibited that are now known were Stead's Telegraph, Fletcher's Defiance (scarce), Yorkshire Regent, Emperor Bonaparte, Crownshaw's Invincible, Turner's Princess, Beauty of Over, Pearson's Alexander, Cox's

Regent, Fillingham's Tantarara. In 1822 the following were added to the list:—Eckersley's Jolly Dragoon, and Nicholson's Bang Europe. In 1826 Collier's Princess Royal, and Nicholson's Gold Lace. In 1833 Buck's George IV., Clegg's Lord Crewe, Sir Sidney Smith, Yond's Independence, Maud's Beauty of England, Bullock's Lancer, and Faulkner's Black Prince was in existence. In 1840 Hutton's Lord Lincoln, and Barrow's Duchess of Sutherland. In 1844 Nicholson's King, Gibbon's Royal Sovereign, Clegg's Lord John Russell, Barrow's Duchess of Sutherland, Saunderson's Cheshire Favourite, Hutton's Lord Raneliffe, and Barnard's Formosa. In 1846 Hall's Premier Peel, not distinct from Lord John Russell. The following were known in 1852:—Buck's George IV., Bullock's Lancer, Cox's Regent, Hutton's Lord Raneliffe *alias* Prince of Orange and Golden Hero, Tillingham's Tantarara, Nicholson's Gold Lace, Nicholson's King, Pearson's Alexander, Stead's Telegraph, Brown's Free Bloomer, Clegg's Lord Crewe *alias* George Canning, Collier's Princess Royal, Saunders' Cheshire Favourite, Crownshaw's Eclipse, Crownshaw's Invincible, Crownshaw's Exile, Hutton's Earl Grey *alias* Lord John Russell, Maud's Beauty of England, Nicholson's Bang Europe, Hutton's Earl Lincoln, and Addis' Kingfisher.—JOHN SLATER.

THE POTATO CROP IN THE WEST OF IRELAND.

THE early varieties here have produced abundant crops and of good quality. The later varieties, such as the Scotch Champion and Magnum Bonum, appear better than has been seen in this locality for years. All the late crops that I have seen are free from disease at present.

The early varieties have suffered a little for the past two weeks, but as yet it is not extensive. I have this season watched the progress of the Potato, and have been careful to note the first symptoms of disease that appeared among those under my care. On the 16th of July I observed on the lower leaves of the Early Rose a number of spots resembling mildew; on the 19th it had spread considerably, still retaining the same appearance. A few days later the leaves became shrivelled, and the disease had extended down the stem to the ground level. Then I had the crop lifted, and as yet there is not one tuber diseased. The above were growing side by side with Magnum Bonum, which has not a speck on them.—A. CAMPBELL, *Ashford Gardens*.

GREENHOUSE ROSES.

ROSES are always acceptable, but the great charm of Roses under glass is that of affording flowers preceding those in the open ground. For producing grand blooms plants in beds are better than those in pots. The border may be 3 feet wide, 2½ feet deep, with a drain pipe its full length, and having a proper fall and outlet. At the bottom 9 inches of rubble may be placed, and over that a layer of turves grass side downwards, the remaining space being filled with turfy loam to which has been added a twentieth part in equal proportions of charcoal and half-inch bones. This will suit every kind of plant except those requiring peat. The plants should be turned out, and if worked they should be planted so low that the junction of stock and scion will be 2 to 3 inches beneath the surface. If there is not convenience for forming a border inside, the plants may be placed outside and the growths introduced through holes in the front, ends, or sides of the house.

The after-treatment consists in supplying water liberally, and liquid manure occasionally or a little guano may be sprinkled on the surface of the soil and washed in. The growth should be encouraged by mulching the surface of the border with short manure. In winter the border must not be allowed to become excessively dry, as some varieties will afford blooms in winter. Syringing is unnecessary. Very little pruning is necessary, only superfluous shoots must be removed, encouraging strong shoots from the base to take the place of old enfeebled growth, which should be well thinned out after the principal spring bloom is past. The secret of Rose-growing under glass is plenty of light. Roses do not succeed when shaded by other plants, and those trained to the sides, ends, or roof should not be more distant from the glass than 12 to 15 inches.

Only the best Roses should be grown under glass, and none is more worthy than Gloire de Dijon, which produces blooms nearly all the year round. Maréchal Niel is fine among the yellows; buds, half-blown or full flowers, are beautiful. Cheshunt Hybrid is the third indispensable Rose for roof-covering, giving its cherry carmine flowers profusely in spring; and Climbing Devonensis with its lovely creamy white flowers is very suitable. The purest white is Innocente Pirola, in the way of Niphetos. Perle des Jardins, straw-coloured, is one of the finest of Tea Roses; Belle Lyonnaise, canary yellow; and Paul Nabonnand, rose, are all

suitable for covering roofs and give an immense quantity of flowers when established. For the sides or ends for planting-out Niphetos with fine nearly white flowers is seldom out of bloom, and is one of the most reliable; Sombreuil, pale lemon, nearly white, very fine; Marie Sisle, white tinged with yellow, one of the best; Mrs. Opie, rosy carmine; Duchess of Edinburgh, crimson; Isabella Sprunt, sulphur yellow; and Letty Coles.

The above varieties will afford flowers more or less all the year in an ordinary greenhouse, and such beauties as are seldom seen on pot plants, besides occupying positions that would otherwise be devoted to climbing or twining plants that do not afford such acceptable flowers for cutting. I have but little experience of Hybrid Perpetuals planted out in the greenhouse. Those that do the best are Alfred Colomb, Marquise de Castellane, La France, Boule de Neige, Baronne de Rothschild, Miss Hassard, and Madame Lacharme.—G. ABBEY.

SCALDED GRAPES.

YOUR correspondent Mr. Taylor writes confidently on this subject, but he does not explain the whole system of scalding or chill by evaporation, which, in common parlance, are synonymous terms. If a chill is the cause of the injury, how comes it that it rarely or never happens in the case of our most tender-skinned Grapes, but is principally confined to Lady Downe's and Black Alicante, especially the first? and in both of these scalding never occurs to a noticeable extent (hardly at all in fact) when the berries are young and most tender in the skin, but always at the stoning period, after which it ceases and causes no more anxiety. In other plants chills are experienced at all stages, but only two or three certain thick-skinned late Grapes suffer from it, and these at a particular stage only. These are questions your correspondent is bound to explain and render conformable to his theory.

Furthermore, scalding happens under the very best management, and is worse some seasons than others, the treatment being exactly the same, only that extra care is taken to prevent it. Two years ago a gardener, whose name is familiar as a Grape-grower of the highest reputation, wrote to me saying, "I never had so much scalding as this year and can't make it out at all;" and this is the common experience. Last year and this season we have had no scalding worth mentioning. Scalding, I fear, is to a certain extent connected with the stoning process, and a seed will usually be found embedded in the scalded part of the berry.

I am afraid I and many others must plead guilty to the lazy plan of admitting air to the vineries at night, and of applying fire heat, if necessary, to render that practicable.—J. SIMPSON, *Wortley*.

THALICTRUMS.

THIS is a small genus, the members of which bear great resemblance to each other when growing, differing principally in size and height. Their compound foliage is very pretty, and from its resemblance to the fronds of some of the Maidenhair Ferns they are useful for mixing with cut flowers or for bouquet-making, whilst as ornamental border or rock plants their leaves afford a pleasing contrast to all the surroundings. They are distinguished by their total want of petals, and absence of any appendage to the fruits, leaves deeply bi or tri-pinnate; flowers mostly small and borne on dense panicles or racemes. The foliage of most of the species resembles that of *Aquilegia* in miniature, from which comes the French name of Columbine plumeuse, applied to *Thalictrum aquilegifolium*. They are showy in the mass when in flower, but as their greatest beauty consists in their foliage, the flower buds should be pinched out in order to strengthen the leaves. Almost any ordinary garden soil will suit the more robust-growing species. For the smaller, which are planted amongst the alpine, use sandy loam and peat in about equal parts. *Thalictrums* like moisture, but not stagnation; so bear in mind, therefore, when selecting a nook or fissure in the rockery, that a moist and genial site is selected, or very little foliage will remain on the stems.

Thalictrum anemonoides.—This is a charming little species for a moist fissure in the rock garden. It seldom grows higher than about 4 inches, and therefore will require a little extra care. Unlike most of the *Thalictrums*, this is an ornamental flowering plant, the blooms being about an inch in diameter and pure white. April and May. North America.

T. alpinum.—Another pretty little species, attaining a height of about 10 to 12 inches. The leaves are biternate and glaucous. It bears a lax raceme of pendulous flowers, which we advise to be kept picked off in order to increase its leaf-development. Europe (Britain).

T. flavum.—This is another of our English weeds; nevertheless

it forms a nice contrast with other plants, prefers a moist situation, and may be allowed to grow up and flower, as it produces ample foliage, the leaflets of which are large, cuneiform, trifid, acute, and dark green. It grows about 4 feet high, producing dense panicles of its yellow-stamened flowers. Europe (Britain).

T. foetidum.—A beautiful small-leaved species, which if allowed to flower becomes somewhat straggling on account of its simple stem, but if pinched and made to produce more shoots it is very handsome; the leaves are compound, with small downy dentate segments. The elegance of its contour is very charming. Siberia.

T. minus.—This plant so much resembles *Adiantum cuneatum* in general outline that no garden should lack it; its merits cannot be too highly extolled as an ornamental-leaved hardy plant, as its foliage may be employed with advantage wherever that of the Fern is applicable, and that, too, without so speedily drooping. Strange to say it is a native weed, and yet no more elegant plant in its way can be found; added to this it is by no means fastidious, but will thrive in almost any soil and any position. Europe (Britain).

If the borders are extensive and more variety of these plants should be liked, there are such good species as the following to choose from:—*T. purpurascens*, *T. glaucum*, *T. aquilegifolium*, *T. rugosum*, and *T. majus*, all more or less beautiful.—H. G.

AUTUMN TREATMENT OF FRUIT TREES.

PROBABLY there never was a year when fruit was such a general failure throughout the country as this, and in nine cases out of ten the cause is attributed to last year's badly ripened wood. Everyone who has observed the fruiting results of different grades of ripened fruit-tree wood know that the two extremes produce the two extremes—the one a full crop, the other scarcely any. Unripe wood produces few flowers, and these rarely form fruit. Last year the Peach and Nectarine trees which retained their leaves until January did not bear one single blossom this spring. They are now making much wood, and if our sunless humid weather lasts they might probably retain their leaves throughout the winter again, but we will treat them now as we treated others about this time last year with satisfactory results. This consists of cutting back, disbudding, and thinning-out all the weak shoots, and nailing-in only the best, about 6 inches or so apart, against the wall.

No time should now be lost in doing this, and all kinds of fruit trees are benefited by this operation. Indeed in my opinion this is the only chance we now have of securing wood anything like ripe in autumn or a crop of fruit in spring. Bad although the weather may be during the next two months, the wood of all kinds of trees must certainly be benefited by being as well exposed as possible to both air and sun, and any labour spent in doing this now is sure to be well paid for by-and-by.—M.

EXHIBITING ORCHIDS.

A SUBJECT of peculiar importance to exhibitors, and one that urgently requires consideration, was introduced by Mr. Bardney on page 433 of the last volume under the title of "Notes about Exhibiting." He discussed in his customary practical and sensible manner the advisability of awarding prizes to so-called specimen Orchids, which really consist of several distinct plants, and cited as an instance the collection for which the first prize was awarded in the amateurs' class for nine specimens at the Manchester Show. Those "specimens" were the most remarkable examples of packing, or rather of planting, that ever came under my notice, and it was not at all surprising that the judging was very closely criticised. Large boxes were employed, and in these the Orchids were planted out, some containing about a dozen plants, the *Masdevallias* being particularly notable from their being carefully arranged in lines. The plants were all small but generally in very good condition, the flowers also being large and the colours bright, but that is all that could be said in their favour. However such "specimens" may suit the projectors of exhibitions, their admission in competition with single plants is manifestly unfair to growers who have not large numbers of plants at their command or means of obtaining them, and yet may be really better culturists than their more fortunate neighbours. Certainly the collection Mr. Bardney referred to was an exceptional one, and in some cases it is by no means easy to decide whether the specimen is "made up" or not; but in the instance under notice there was no doubt whatever, and therefore it affords a good opportunity of pointing out the evil of the present system, and also of suggesting a remedy. That it is an evil is generally admitted, and I am aware that some of the most noted exhibitors of Orchids fully recognise it as such, and would

most readily welcome an arrangement by which more justice could be done to the cultural skill of the exhibitors.

The principal object of those who devise the schedule of a horticultural society is, or should be, to so frame the classes that the best possible display can be procured. This object would rarely be attained if "packed specimens" of Orchids were entirely excluded, for they frequently contribute considerable attractions to the shows of the metropolitan and principal provincial societies; therefore some plan must be adopted by which the customary display will be produced without bringing single and "made up" specimens in competition in the same classes. It appears to me that there are two ways in which this might be effected—either by devoting one or more additional open classes to single plants, or by stipulating that the amateurs' classes shall not contain any packed specimens. The former would perhaps exceed the means of many societies, and on that account the latter would probably prove more generally applicable, as the disadvantages of the present system fall more heavily upon amateurs than nurserymen. The prizes could be offered in the "packed" classes, either for a group of Orchids to occupy a determinate space, or for a specified number of pots or pans of Orchids not to exceed a certain diameter. By this means every encouragement would be given to exhibitors of all kinds, and the display would be equally as good, or in some instances better, for many growers would be induced to compete when they knew that they had not to contend with numbers, but with size and merit only.

Difficulties would probably occasionally arise in determining whether specimens were "made up" or not; but these would be comparatively few, and with ordinary care, relying upon the honour which the majority of exhibitors possess, little inconvenience would be felt. At all events, I am persuaded the judges would be able to give more satisfaction than is possible at present, and that would be no inconsiderable gain. I offer these suggestions with the desire that some of the readers of the Journal will give the subject their consideration, and if any better course out of a difficulty can be proposed it will be most welcome.—N.

SUTTONS' SEED TRIAL GROUNDS.

IN Messrs. Sutton & Sons' seed trial grounds at Reading there are at the present time a great number of annuals and perennials in bloom, which are both interesting and instructive to the visitor. The kinds sown are similar to those distributed to their customers. As a rule the strains are very good, and, what is of great importance to all concerned, are wonderfully true to name, a few "rogues" only being seen. All are well grown and allowed plenty of room, the result being very sturdy plants, which produce seed of the best description. As may be imagined, the masses of various colours produced by the earliest-flowering Stocks, Zinnias, Marigolds, Petunias, Lobelias, Verbenas, Violas, Phloxes, and others, are strikingly grand. The Stocks and Asters are sown where they are to flower, and none could be better than the plants thus grown. Lobelias are very true to name, some of the newest varieties being unusually compact. The strains of single Petunias, *P. grandiflora* in particular, are remarkably good, the flowers being large, of good substance, freely produced, and very rich and varied in colour; many good doubles are also obtained from seed. The centres of two large beds are filled with a variety of Phlox *Drummondii*, designated Dwarf Chamois Rose, which is destined to play a very important part in the future flower garden arrangements. In habit it resembles *Silene compacta*; the flowers are of a pleasing shade of rose colour, very freely produced from the commencement of June till late in October, it being really half-hardy. It comes perfectly true from seed, and this is sown during January, the seedlings being planted out early in May.

The beds of seedling Verbenas are extremely beautiful. The growth is vigorous and clean, in marked contrast to what is usually the case with those plants propagated by cuttings. The seed germinates freely in heat, and one packet will give a number of handsome varieties. Great numbers of Dahlias are grown here, and these, too, may easily be obtained from seed, the same remarks applying to the varieties of the useful Delphiniums. All the best named varieties of the double Pyrethrums are grown, which, by being cut down immediately after flowering, bloom three times during a season. The above by no means exhausts the attractive plants to be seen either among the annuals, perennials, or herbaceous plants.—A VISITOR.

TRANSPLANTING WINTER BROCCOLI.—The rich fresh soil left after digging early Potatoes I find excellent for winter Broccolis, and no time is better than the present for planting them. I have been planting some of Snow's Winter White, which for an old variety I found during the last two severe winters much superior

in resisting frost to many other varieties. Excellent, too, but scarcely so hardy was Veitch's Self-protecting. In many of the gardens around Knight's Protecting and Dilecock's Bride are still preferred for early spring use. A most important point in planting Broccoli now is that the ground, instead of being forked over and made loose and friable, should rather be tramped and left level after the Potato crop is removed. If fine heads and less foliage is desired the ground must be firm. This was recently pointed out in the Journal by Mr. Wright.—W. J. M., *Clonmel*.

BRIGHOUSE HORTICULTURAL SOCIETY.

A PREDECESSOR of mine once bought some famous (as he thought) Devonshire cider in bottles, which he brought home in triumph. It fizzed and creamed like champagne, and he gave a glass of it to an old gardener who had lived on rough Dorset eider all his life, "Well, sir," said he in reply to the question how he liked it, "I don't believe there is an Apple in a hogshead of it." I am afraid that much the same sort of thing may be said of these remarks. I sit down to write a description of a Yorkshire flower show, but I am afraid that very little will or can be said about what should be the most important part of such an exhibition, and that is the flowers.

There were flowers much as there is sawdust at a circus, but they bore about the same relation to the rest of the entertainment as the former does to the daring riders who jump through hoops and all the fun of the show. We had horses, dogs, cows, pony racing, horse racing, horses in traps, and roadsters, agricultural horses, and every kind of quadruped except donkeys.

The flowers were, alas! very poor. But what can one expect after the weather we have had? If you want to know what the winter has been come to the West Riding of Yorkshire; here you will see Conifers killed, such shrubs as the Aucubas and Euonymus as brown and withered as if they had been burnt with an iron. The weather, too, during the so-called summer has been fearful. Nearly every day till this last week we have had heavy downfalls of rain, and there has never been really hot sunshine.

A man who lives on the moors told me the other day, that up there they had "nine months of winter and three of cauld weather," and he never spoke truer words. Last year another man who keeps an inn at the entrance to the moor which crosses Blackstone Edge told me they only had one fine day, and that was on the 12th of August. There is great humour in these Yorkshire tykes, and no end of fun to be derived from going among them. You may see this from some of the signs at the public houses. One that I found in a narrow bye street at Halifax may be mentioned. There was written up in gold letters "Good ale given away here to-morrow, but a bird in the hand is worth two in the bush." A very common name in this district for a public house is "The Fleece." How this must amuse a teetotaler; it is so very appropriate here, where hard drinking is so prevalent.

The only flowers that struck me as worth noticing at the Show at Brighouse were the Fuchsias. There is here a family called Kershaw who are noted for being good gardeners. They all keep nursery gardens, and are enthusiastic growers of plants. One of these, the son of the founder of the family, J. H. Kershaw, showed some magnificent Fuchsias, the best of which was the Earl of Beaconsfield.

The cut flowers were very poor. The Roses made one roar with laughter. "They look, Jack," said a witty brother of mine, "as if they had crossed the Channel and been masted for insubordination." The Asters were about the size of Pinks. The herbaceous Phloxes appeared to have shared the bed of the owner, or to have been the battle ground of all his neighbours' cats. But they all took prizes. The Judges were very merciful, and I am glad I was not one of them.

The trotting and leaping were first-rate, and so was the music. But why, can anyone tell me, why does the band here always play the Hallelujah Chorus during the racing? Surely poor Handel never intended his divine strains to furnish inspiring music for horses to trot or gallop to; yet for years I have heard this grand Chorus played at the same time. It does sound so very droll. A reason may be why so much sacred music is introduced, that the field is next to the church. If so, the compliment is a very delicate one indeed.—WYLD SAVAGE.

AURICULAS FROM SEED.

As the seed of these beautiful flowers is now ripe and sowing must now commence, I propose, in answer to several inquiries, to give particulars of my mode of sowing and after-management of the seedlings. The following points must be particularly attended to:—Never sow the seed deeply, or it will not germinate until by

some accident it is brought near the surface, when probably a small proportion of the seeds may start. The surface of the soil must not be allowed to become dry, or the seedlings will perish; whilst, on the contrary, if kept too wet the plants are liable to damp off, or eanker will commence in the young rootlets.

My plan of sowing the seed is as follows:—I procure light boxes about 15 inches long by 12 wide, and not more than 3 inches deep inside. I bore a number of holes half an inch in diameter through the bottom of the boxes; I then place a drainage of potsherds in the box fully an inch deep, and on this a layer of dead leaves (not decomposed). In the absence of leaves I employ short straw, old thatch, or any substance that will prevent the soil from stopping the drainage. The boxes are then ready for the compost, which consists of the following substance:—Two parts good strong turfy loam free from peat or sand, two parts manure—decayed cow or horse dung two years old, free from worms or insects; and two parts leaf soil, silver sand, charecoal, or burnt refuse in equal proportions. The sand should be as coarse as it can be obtained, and the charcoal in lumps about the size of peas. This compost requires passing through a half-inch riddle. The boxes must be filled within half an inch of the top, pressing the soil firmly down, and on the surface a thin layer of finely sifted compost containing a good proportion of silver sand. I level the surface with a trowel. The seed is mixed with dried silver sand, and then sown thinly and evenly. After sowing the seed the soil is moistened with water from a very finely perforated rose, allowing the water to descend on the box in fine spray until the whole of the compost is thoroughly supplied. The boxes are covered until the seed germinates, when I sprinkle over the seed a small quantity of the finely sifted compost just sufficient to cover the seed. When the plants appear they must be gradually inured to the light, carefully shading them from sun or drying winds. A frame facing northward is very useful at this time.

When the plants have produced their second leaves I dibble them out $1\frac{1}{2}$ inch apart in other boxes in a similar compost, but not containing so much silver sand. There the seedlings remain until they become crowded, when they are again planted 3 to 4 inches apart, where they remain until they bloom. At all times carefully remove dead foliage, keep the plants free from dust, and constantly watch for the aphides, which are very troublesome. The best mode of destroying them is to damp the plants with a decoction of Gishurst compound or soft soap in the proportion of 2 ozs. to a gallon of water. I set the boxes on a stand or table, and then syringe under the leaves as well as over the plants, and allow it to dry on them.

After the seedlings are planted out of the seed box it will be a good plan to stir the surface of the soil, sprinkle a little fine compost over it, water and shade again, when it is possible another crop of seedlings may appear. This I have never known to occur when the seed has been sown as I have directed; but no doubt when the seed is sown too deeply stirring the soil, or even lifting the plants, will bring the seed so near the surface that it will commence growth.

Carefully watch for slugs, which are very destructive amongst young plants. I take a lantern after dark and hunt for them. Do not at any time place the boxes on the ground permanently, as the worms are sure to prove troublesome. Either place them on a bed of ashes or on boards raised a few inches above the soil; and I also nail a narrow piece of wood about an inch wide and half an inch thick across each end underneath the box to prevent the drainage of the boxes becoming stopped. At no time for plants in boxes do I employ a greater depth of compost than 2 inches, whilst for seed when sown $1\frac{1}{2}$ inch is ample.—GEO. RUDD.

SUGGESTIONS FOR CHECKING THE POTATO DISEASE.

MR. G. H. WITH, F.R.A.S., Agricultural and Sanitary Chemist to the Hereford Society for Aiding the Industrious, writes as follows respecting the checking of Potato disease:—

The yearly destruction of our Potato crop, and the great loss of food which follows, render it absolutely necessary that some plan for checking, and if possible exterminating, the disease should be tried without delay. After giving much attention to the subject I offer these suggestions, with the full belief that if they are carefully followed results will be obtained which will far more than repay the trouble.

The Potato disease is owing to the destructive action of two kinds of mildew; and it starts afresh every year from seeds, or spores as they are called, which have rested during the previous autumn and winter in the ground, the Potato tubers, or the manure heap.

1, Burn the haulm and all waste Potatoes, parings, &c., not

intended for the animals as soon as possible after the crop has been raised. Unless this is done the decaying haulm and waste Potatoes may fill the ground with the spores of the destroying mildews.

2, Do not throw the haulm and waste Potatoes upon the manure heap, because the mildew spores will gain in strength by resting in the manure, and this manure will help to spread the Potato disease next season.

3, Boil for a long time all diseased, and even apparently sound Potatoes before you feed animals with them. It is highly probable that the seeds of the Potato mildews gain strength by passing through the stomach of an animal, the pig for instance. The manure of animals fed on raw diseased Potatoes and Potato parings may, for the above reason, become a powerful means of spreading the Potato disease.

4, Do not grow Potatoes on the same piece of land two years in succession. Any mildew spores which may rest in the ground from the last year's Potato crop will begin to grow about the beginning or middle of May; but they will quickly perish if they cannot find Potato plants at hand to nurse them.

5, Be sure the seed Potatoes are quite free from disease when planted. A Potato does not always show the disease on the outside; therefore it will be necessary to cut the sets, in order that the condition of each one may be seen. A few diseased plants will serve to infect acres of Potatoes in a wet warm season. Some varieties of Potatoes—notably Scotch Champion and Magnum Bonum—resist disease to a remarkable degree, though of course not entirely. Such varieties only should be planted for the main crop. First early Potatoes should be planted as early as possible, and raised as soon as ever they are marketable.

6, Use chemical manures in preference to any others for the Potato crop. Ordinary manures may, especially if brought from a distance, contain the mildew spores.

7, A Potato crop may generally be saved by pulling up the haulm throughout the whole crop as completely as possible directly the disease spots appear on the leaves of any one of the plants. Of course the tubers will not grow any larger after the leaves and stalks have been removed. They will, however, ripen in the ground (more or less according to the season), and though they may not be very large they will be fit for food.

8, To ensure success all the Potato growers of a neighbourhood should follow the above plan. One plot of diseased Potatoes may furnish spores enough in July to destroy the surrounding Potato crops.—(*Hereford Times*.)

ABOUT LIVERPOOL.

UNDER the above heading some interesting notes were published last year descriptive of some good gardens contiguous to the great seaport, brief notes of the undermentioned gardens may therefore also be acceptable. The first I will notice is

HOLLY LODGE.

This is the residence of Mrs. Berg, West Derby. The gardens are not extensive nor the houses numerous, yet they contain a general assortment of decorative plants. The lawn is the principal feature, which stretches out boldly from the front of the house, and is evenly balanced with such shrubs that succeed well in the neighbourhood. At the time of my visit I was much struck with the quantity of Hollyhocks free from disease intermixed with the shrubs in various parts of the grounds, which had a very pleasing appearance. The fruit and kitchen gardens were well attended to, the latter being clean and well cropped. The garden on the whole was in excellent order, much to the credit of the gardener, Mr. Richardson.

BANKFIELD.

This is situated not more than fifteen minutes' walk from Holly Lodge, and is the residence of Mrs. Nichol. The garden is by no means large, but is well kept. The Vines were in very good condition, especially Foster's Seedling and Black Hamburgs, from which first-rate Grapes are produced. Another house is entirely occupied with one Black Hamburg Vine (forty years old), which also runs from one end of the adjoining conservatory to the other. This Vine has been under Mr. Massie's charge for twenty-two years. It carried for fourteen years 120 bunches annually, and about a hundred annually for the remaining eight years. The Vine is still vigorous, and has improved within the last few years, its roots having free access to a new border. Peaches are well grown in two houses, the trees healthy, well and thinly trained. The conservatory contains some magnificent specimens of Camellias in tubs, while Azaleas and other plants are well grown. The walls of the garden are well furnished with hardy fruit trees, such as flourish and fruit best in the neighbourhood. Pears are represented by several varieties, many of which have been grafted, and

the same process is still carried on in season with those varieties only that prove of sterling merit and first-rate quality. Everything that is taken in hand by Mr. Massie appears to be well done, and the garden generally is as well kept as any in the vicinity of Liverpool, which affords ample evidence of the skill of its manager.

HOLMESTEAD.

This, the pleasantly situated residence of J. T. Davis, Esq., is located at Moseley Hill, four miles from Liverpool. The grounds are not extensive, but such as anyone might take an interest in. It is situated on rising ground, and commands extensive views of the surrounding country. The houses are nine in number, and filled with such occupants as are generally to be seen. The Vines are only in fair condition, and the borders shortly are to be renovated. In one of the houses I noticed a *Bougainvillea glabra* flowering profusely, and the conservatory, which is lofty and close to the house, contained a good pair of Tree Ferns. In one of the pits were a fine strain of Primulas. In various parts of the grounds where alterations are now going on are arches of ancient constructed of sandstone and entirely covered with the common Tree Ivy. In other places heaps of rockwork are formed into seats and covered similarly to the arches, and in solitary places glimpses are caught of the stone. These are uncommon, and impart a novel appearance to the grounds. The gardens are in good order, and neatness seemed the order of the day with Mr. Beesley, the able gardener.

ROSEMOUNT

Is situated in the most pleasant part of the suburbs of Liverpool—viz., Aigburth, and its worthy owner is R. G. Allan, Esq. From various parts of the grounds, especially from an elevated walk, good views of Cheshire are obtained, and beautiful glimpses of the surrounding neighbourhood. This place on the whole is rather extensive, especially the glass houses, which lay in two separate parts of the grounds, whilst the conservatory is a good-sized structure adjoining the mansion, and is devoted to flowering plants, with Camellias as permanent plant occupants. The vineries are three in number, one of them being a very large span-roofed house, and the Vines in it are two years old and have borne a few good bunches and made excellent short-jointed canes. The Rose house is a large span-roofed structure with the Roses planted out, trained under the roof, and underneath were trained plants of Mignonette, Chrysanthemums, and quantities of small standard and dwarf plants of *Laurustinus* grown from cuttings, which are strong and showing abundance of flower. Running parallel with the last house is a new stove; it is a large, light, fine house, and admirably adapted for plants. The walks are laid with fancy tiles. The house has a well-heated bed in the centre, and a substantial stage round the sides. The structure has been erected by Messrs. Webster & Sons, and I may safely conclude it is the best house for stove plants in the neighbourhood of Liverpool. There are also houses for growing Faney and French Pelargoniums, hardwooded plants, and Azaleas. The fernery is worthy of special notice, which is artistically arranged with rockwork, designed and executed by Mr. Francis, the gardener. The rock is composed of red sandstone, and the Ferns are thriving freely upon it. *Oncidium flexuosum* appears to grow luxuriantly associated with the Ferns, which are planted out, intermixed with fine-foliaged Begonias. There are two waterfalls, which have a natural appearance dashing over the rugged rocks until it descends into the little pool beneath.

Before reaching the remaining houses I followed a winding walk, bedded on each side, and banked up with evergreens in the background. This walk leads from the mansion to the flower garden, which is formed into a square, and the beds are cut out in the turf. It is enclosed by banks of Rhododendrons and other evergreen shrubs with the entrance before mentioned, and outlet walks leading to various parts of the grounds. The one I followed led into the kitchen garden, where is the remaining portion of glass, the first being the one which now contains the stove plants, but which will eventually be occupied with Cucumbers and Melons. The next to this is a span-roofed structure, 200 feet or more long, and about 10 feet wide, divided into three compartments. One was filled with Primulas; another with Tomatoes, bearing a wonderful crop of fruit in various stages, which will afford abundant supply all winter. The last was filled with plants for winter blooming, amongst them being a number of *Daphnes* trained on umbrella-shaped trellises. The pleasure grounds, the kitchen, fruit, and flower gardens, are well managed and well kept.—W. B.

LIMNOCHARIS HUMBOLDTII.—This is an aquatic that should be more generally grown. Its flowers, which are produced nearly every day throughout the summer, may be picked with several

leaves and placed in a glass bowl, and will form a fit companion to *Marica cærulea*. It may be grown in a greenhouse during the summer months, but should be kept in a warm house the remaining part of the year, should be exposed to full sunlight if possible, and will succeed in an inverted bellglass, shallow tub, or flower pot, with any kind of soil, and fresh water once a week.—J. U. S.

NEW PEA JOHN BULL.

THIS new main crop Pea is a 3-feet blue wrinkled variety of first size and quality, raised by Mr. Laxton from a cross between

Veitch's Perfection and Laxton's Prolific Longpod. In the trials at the Experimental Garden at Girtford, where during the past season Mr. Laxton has been testing a very large collection of named and unnamed varieties, the two which have stood out most conspicuously are John Bull as a 3-feet, and Telephone as a tall variety. The former is a very vigorous but compact-growing, handsome-foliaged, branching Marrow, having very closely-filled pods containing from nine to thirteen large peas in each, and ripening a few days before Veitch's Perfection. The dry seeds are of a deep greenish blue colour, wrinkled and flat from being so closely packed in the pod. As a general Pea, for its regular



Fig. 28.—PEA JOHN BULL.

habit of growth, its handsome appearance, its fertility and rich flavour, Mr. Laxton considers this the best Pea he has raised, and unapproached by any other variety of its class. The pods, which are usually produced in pairs, have only a slight curve, and in shape and size are the *beau idéal* of a fine show Pea, being larger, deeper in colour, and less curved than those of Marvel. Sown on the 11th of March this year John Bull was ready to gather on the 11th of July.

Mr. Laxton's appreciation of this Pea has led him to adopt it largely as a stock variety for crossing with the dwarf and tall early and late varieties. From the same parentage Marvel, and

it is said also Telegraph and Telephone, have sprung, although from the size and shape of the pods and other characteristics the origin of the two latter may, perhaps, be credited to a cross with Superlative, of which variety Mr. Laxton has a very fine selection with large and better filled pods.

This is the description that was referred to on page 122 last week, but the engraving was not completed in time for insertion in the same issue.

DESFONTAINIA SPINOSA IN THE NORTH OF IRELAND.—As my residence is in the county of Donegal I have put the hardihood of

this shrub to a severe test. The largest specimen I have is 5 feet high and 6 feet through, and is now covered with its beautiful orange and yellow blossoms. I have several others from layers planted out in the borders of the shrubberies, all in perfect health. Their dark green foliage has been quite uninjured by the severity of the last two winters, though they have not had any protection during times of frost. A much larger specimen, from which I have reared all the others, was killed the winter before last. The situation is well sheltered, and the soil a rather heavy clay. I am greatly surprised that this very desirable evergreen, which is easily propagated by layers, is not in more general cultivation.—JOHN R. BOYD.

MEALY BUG IN VINERIES.

It is now some years since I was troubled with the pest referred to by Messrs. Bardney and Cakebread in your issue of the 22nd ult. In plant houses where mealy bug becomes abundant it is always difficult to dispose of it. The case of vineries is somewhat different, but in them, doubtlessly, it is introduced upon other plants, and until a vinery is cleared of all infected plants it is nearly a hopeless task to attempt cleaning the Vines. Had I a vinery so infested I would have it first cleared of plants, then deal with the bug severely after the leaves had fallen. If the first brood of the insects were carefully watched for in spring, and the Vines properly dressed previously, I should not have much fear of clearing bug from a vinery in one season, provided plants were kept out of the house.—R. M.

WE do not hesitate to assert that there are but few subjects in the whole round of gardening practice that are of more importance than mealy bug on Vines. There is perhaps no question that we have had so often to answer as, "What is the best way of eradicating mealy bug from Vines?" We do not say that it is impossible to successfully accomplish the task, but it is as near as can be impossible without destroying the Vines too. We regard mealy bug as the most obnoxious enemy of the Vine that we know of, excepting the phylloxera; and, unfortunately, we have had more experience of both insects than we would care to encounter again.

Cold water forcibly applied to every part of the Vines affected with the insect has been recommended. But we do not hesitate to say that the contest has a resemblance to that of the old lady with the Atlantic. A friend and correspondent, at the time paraffin was being recommended for insect pests in general, and mealy bug in particular, went strongly in for the remedy. He first scraped off, as closely as possible, all bark that could safely be removed from the Vines, and then dressed them with paraffin and water. The result was, that the Vines were so injured that they had to be rooted out; but the bug was left intact. The fact is, no remedy, however powerful, that can be applied in winter, when Vines are dormant, can effect the complete extermination of the bug, simply because the insect retires into crevices about the Vine where no application can reach it. Besides, after the bark of the Vine is scraped off almost to the quick, paraffin is a dangerous, indeed more or less fatal, application. The Vine is so porous a subject, and the oil so penetrating, that it is sure to be hurtful, and at the same time sure not to reach all the safe retreats to which the insects betake themselves for the winter.

Ten years ago, when rebuilding a plant stove, we put the plants into two vineries, for want of a more suitable place. From the plants the Vines got bug. In order to eradicate it we had recourse to the orthodox means of close-scraping and winter dressing, with everything we could think of that would not injure the Vines. At the same time every crevice that could be seen was filled with styptic, in order to seal up and kill the bug. But every spring, as the Vines began to grow, a fresh army, more or less numerous, of the enemy appeared. One winter paraffin oil was applied to one Vine, with the result that the Vine was seriously injured, but the insect not destroyed. The conclusion was at last come to, that if it was to be completely conquered it must be done chiefly in spring and summer, when the insect was active and to be seen.

Bug by some means got carried into a Muscat house, and by catching and killing it has for several years been perfectly free from the pest. It also found its way into a large Black Hamburgh house—we always have thought, by introducing a bought-in Vine for inarching. For four years the summer catching-and-killing system has so reduced it in this house that a whole day's most minute search results in capturing one or two, and sometimes none at all, and in having localised its haunts to a few Vines; and it is hoped that this season will see its complete extinction. Although it has rarely been allowed to get into a bunch of Grapes, it has been prevented from doing so at a great outlay of hunting

and picking. But no amount of labour should be considered too much to keep such a filthy insect from the fruit.

Our conviction is that all the scraping and dressing with insecticide that can possibly be done in winter can never clear Vines from bug, and that enough will escape any winter effort to prove a most filthy pest in summer if left to breed unheeded; and that success in this way has not, to our knowledge, been recorded. What we recommend, from our own experience and success, is to scrape thoroughly in winter, so as to remove as much of the insect as possible; to scrub the Vines with a hard brush and soapy water; then to fill up every crevice effectually with styptic, and dress with Gishurst compound at the rate of 12 ozs. to the gallon of water, and well thickened with white hellebore powder. This process does not damage the Vines, and it gets rid of all the insects that can be reached by any means. The woodwork of the vinery also, and everything about it, should be thoroughly cleansed, and, if possible, painted. Then, as soon as fire heat is applied to the Vines in spring, let the rods be carefully examined three times a week, and bugs will be found emerging from the most unlikely and minute hiding places. Of course the object is to kill them before they get time to reach the young wood and leaves of the Vine. This hunting must be persevered in all through the season if success is to crown the effort. This process will get rid of the pest; and we do not know of any other that ever has or will. Certainly, if an easier plan is known to anyone, we do not think a greater boon could be conferred on scores of gardeners who are battling in despair against bug, than that of making known the secret.

Bug on Vines is a nuisance of no trivial nature, and plants infested with it, or even subject to it—and we should like to know what plant is not—should never be allowed inside a vinery. There is nothing more easy than to get a breed of the insect into a vinery; and there are few tasks in the whole of gardening so difficult as to get rid of it. But it is quite a possible task; and that, we believe, is more than can be said in the case of phylloxera in vineyards, without stamping it out by destroying the Vines—a fact which seems to be dawning on the French, now that one-sixth of their vineyards have already been destroyed, in spite of every conceivable appliance.—(*The Gardener*.)

STOCKS FOR SPRING FLOWERING.

I DO not know any flowers more fragrant than Stocks in early spring, either when grown in pots and flowered in greenhouses, or when planted out in open borders. The true biennial Stocks, the Brompton and the Queen varieties, are most commonly known, though I have not grown either since I became acquainted with the Intermediate East Lothian. This, though rather tender, well repays any extra care that may be bestowed on it. Young plants to flower next spring are now sturdy little specimens in 4-inch pots, but it may not be too late even now to sow the seeds in the south of England. Sow them on a south or east border, covering the ground with a mat until the seedlings appear, and as soon as they are large enough prick them out near the base of a wall. They may either be allowed to flower in that position, or may be transplanted in March. To flower in pots they may be pricked-off into a rich piece of ground, and potted in 5-inch pots in the end of September, placing them in dry frames or pits about the middle of October. The pits must be well ventilated, and before severe weather commences the plants will have filled the pots with roots and be in a condition to pass through an ordinary winter without injury.

One point is very essential in their management—*i.e.*, to keep them free from damp. In the middle of winter they may be safely left without receiving any water at the roots for a few weeks. In February they will commence growing; if a pit can be partly devoted to them where they can be assured a minimum temperature of 45°, they should be shifted into 7 or 8-inch pots, employing a rich open soil. A really fine display will be the result. After being removed from the greenhouse they may be planted out in borders, where they will continue to flower until winter. I have had very good results from plants lifted in autumn from borders and potted into 8-inch pots, but these plants are not so fine as those specially prepared for the purpose.

It is important to select the plants at least a fortnight before lifting them, cutting the roots round with a spade, and lifting them very carefully and potting immediately. I keep the plants very cool for a few weeks after lifting, and then winter them in a Peach house, in which they begin to flower in February, and continue for a long time to produce spikes of their sweet-scented flowers. These Stocks are very useful, as they come into flower a second time about the middle of July and continue in bloom until the growth is stopped by cold weather.

Growing these Stocks from seed is very simple. I sow the seed early in February in boxes, or in prepared beds; in either case it is better not to give a higher temperature than 50° to 55°. When the seedlings have formed their first leaves is the most uncertain period in their life, and if grown in a high temperature they are liable to damp-off by hundreds. I seldom lose many, as ventilation is carefully attended to, and if water is required the boxes are plunged in a tank. Should the seedlings commence "damping-off" they are immediately transferred to cold frames. After being a few days there a bed is prepared in a cold brick frame by mixing together a large quantity of mushroom dung and soil, and in this the plants are pricked-out. When established they grow very rapidly, and by the end of April they are transferred to borders prepared for them. I prefer the white and purple varieties to the others, but the new crimson is very fine.—R. P. B.

A WEEK OUT.—No. 4.

CHISWICK.

ON June the 12th I visited the Royal Horticultural Society's Gardens at Chiswick, which, although not now noted for its shows, is still the backbone of horticulture in this country. Unassuming labour is everywhere in these gardens bestowed upon horticulture. Whatever the skilful cultivator can bring to light by careful well-conducted experiment is done in no uncertain manner. Whatever is necessary for comparison in respect of the most esteemed vegetables, fruits, and plants is represented by complete collections at the time of experiment, so that the merits of the several varieties is patent, and the testing of new varieties complete from the data thereby secured. That much useful work is done there deserves to be more extensively known. Much real horticultural work is done and thoroughly, reflecting great credit upon the Society's talented and urbane Superintendent Mr. Barron.

Of the multitudinous subjects provided by Mr. Barron for the instruction of Fellows and visitors a volume might be written with no little profit to the horticulturist; but I have neither the opportunity nor the capacity of describing or criticising the treasures at this establishment, but some of these noted may not be devoid of interest. In Ewing's glass case or covered wall were very healthy Vines in their second season from planting, making stout short-jointed wood, and having good firm-textured leaves, each Vine having shown a profusion of fruit, which had been reduced to about eight bunches to each rod; the footstalks of the bunches, as also those of the berries, being stout, which are among the essentials to well-swelled berries and the avoidance of shanking. The Vines were producing roots freely from the collar and were in the best possible health. The varieties were principally Gros Colman, Alicante, and Alnwick Seedling. When ripened-off the effect must be telling, as the bunches are of the size and form that swell off large berries and colour well. Against the back wall Tomatoes (Hathaway's Excelsior) in pots were promising an abundant crop of fruit. In another vinery were Vines finishing off an even crop, being serviceable bunches of fair size, good in colour and bloom. These Vines are growing in loam without any of those many ingredients considered necessary for mixing with what is here only considered necessary, the results justifying the practice. Muscat Hamburgh (Black Muscat) is proved by Mr. Barron not to be different from Venn's Muscat. Royal Ascot is considered good in every respect for pots. The conservatory, now a vinery, is very interesting, the crop of Grapes being very regularly disposed in bunches that will certainly average 1½ lb. each, the size most desirable, and such as almost invariably finish well. The Vines show fruit so freely that probably one-half only is allowed to remain for the crop, which amounts to 4500 bunches, and though carrying full crops annually the Vines were in the best of health, and may owe their fertility to Mr. Barron's practice of yearly encouraging new growth to replace older growth, a portion being cut away each season. This, whilst it does not overcrowd, is clearly the extension system modified, and one that might be followed in the case of Vines that have been planted some years with great advantage. Barbarossa (Gros Guillaume) is not found to fruit freely on the old or close-pruning system, but fruits here admirably from not being very closely pruned.

In the orchard house was a moderate crop of fruit, Galande Peach and some others being well fruited, also Downton Nectarine; but as a rule orchard trees this season, though they set the fruit well, have made much stronger growth than usual, and, as invariably happens after a sunless season, the fruits have not stoned satisfactorily. The trees, trained obliquely against the Peach wall, had very little fruit. Both Peach and Nectarine trees had very healthy foliage and no blister. Apricots were few; Plums had dropped, and pyramid Pears were very scant generally, there being a good sprinkling on some, notably Beurré Gris.

Apples were somewhat better; some cordon trees were profusely fruited. A pit full of the different varieties of Capsicum will be interesting by-and-by, the bright-coloured fruit of these plants rendering them highly decorative; and another pit was devoted to Egg Plants, also very pretty, and must come into more general use for culinary purposes. The yellow-leaved Red Currant as well as the yellow-leaved Black Currant, having fine bright yellow foliage, would be highly ornamental for planting, also useful in coverts, on account of the berries for winged game, the Black Currant being suitable for planting in damp situations. Asparagus was there, as in many other places, killed or the plantations spoiled, and Seakale was equally as bad. Early Munich Turnip showed several days in advance of Strap-leaved in being fit for use, a point of some consequence in early Turnips.

A charming bit of rockery was very gay with many plants. Some of the most noticeable were *Iberis Tenoreana*, the best of the genus, having large heads of lilac bloom. *Viburnum plicatum* occupied a prominent position, its large snow balls being very effective, this and *Hydrangea paniculata grandiflora* are two of the finest of hardy white-flowering shrubs. *Campanula pulla* with its profuse bells of brightest blue was really grand. *Veronica rupestris*, even more bright and of the loveliest blue. *Dianthus alpinus*, with its deep rose flowers spotted with crimson. *D. plumarius*, pale pink and dark ring; very fine. *Armerias* or Thrift that in pink have few equals. *Aralia Sieboldi*, introduced in prominent position, from its boldness, is telling; the Feathered Grape Hyacinth (*Muscari monstrosum*) with its large showy heads of soft purple; and a magnificent mass of *Orchis foliosa*, having lilac-purple flowers spotted with crimson, were very beautiful. Among herbaceous plants were *Potentillas*, very fine; Irises deservedly coming to the fore, for no Orchids excel them in beauty; *Delphiniums*, *Pyrethrums*, &c.

Cape Pelargoniums at Chiswick were unique. There was the original Zonal, the parent of the fine varieties we now possess; and what an advance has been made from this with its pink narrow petals and zoned leaf! Not less interesting is the original Nosegay with its still more narrow scarlet petals. *Pelargonium crispum*, one of the Cape species, is as lovely a plant as can be had for affording sprays for cutting. The double Pelargoniums were a feature of great interest, especially those from M. Lemoine; the double-flowered Ivy-leaved being very fine, especially *Beauté d'Orleans*, bright deep rose, very beautiful, the habit being very compact. Zonal and Show Pelargoniums were well represented, and there was a grand display of Tuberous Begonias in one of the houses. Those were remarkably well grown, the plants being sturdy, and carrying large highly coloured flowers with good foliage. *Pelargonium bicolor* is an old Cape species of interest, and by no means common is the very beautiful and distinct *Canna iridiflora* with rose flowers, very effective for a conservatory.

There were plants of varied description for decorative purposes, such as Palms, *Dracenas*, &c. *Fuchsia dependens*, having bright scarlet flowers, may be mentioned as fine for pillars; and *F. corymbiflora* is equally fine for a similar purpose. In the Fuchsia house are some great curiosities, such as *F. procumbens*; the lovely *Venus Victrix*, one of the finest small decorative plants in existence; *F. conica*, small bright red flowers at the points of the shoots; *F. ignea*, orange-scarlet tubular flowers; and others of greater pretensions. Tuberous Begonias succeed well at Chiswick in beds. *Iberis gibraltarica* is the finest of all the perennial Candytufts, and *Myosotis Impératrice* Elizabeth yields to none in the brightness of its blue.

Gloxinias were a speciality, and the collection, or rather selection was fine. *Neriums* were in strong force, there being many varieties, in colours of white, yellow, rose to deep red. Plants of *Torenia Fournieri* in 6-inch pots had lovely flowers, sky blue with dark indigo spots, and is highly ornamental, being a greenhouse annual, it being spoiled by too much heat. *Fragaria indica* is a fine plant for baskets, being of slender growth, producing yellow flowers at the joints succeeded by highly coloured fruits. It is not hardy, or only in sheltered situations, otherwise this Strawberry would be a fine rock plant. Many other plants are to be seen at Chiswick which few hear of, or only occasionally by a paragraph in the press; but the best of all means of unearthing its treasures is to go and see—see plants being propagated, new, choice, and rare, for distribution among the Fellows; and if the visitor be accompanied by Mr. Barron the intellect must be dull if some new idea is not obtained and much instruction afforded. Old Chiswick has done much in the past, and is still doing work tending to advance horticulture; and may it long continue its career of usefulness, taking the lead in all matters calculated to promote the interests of gardening and gardeners.

June 14th.—My object this day was to see fruit and market gardens, but after much travelling by rail and on foot I only saw

acres of fruit trees in a pitiable condition, the trees in many instances having been considerably injured by the late unfavourable summers and severe winters. There did not appear to be enough fruit to pay the rent of the ground.—G. ABBEY.

DELPHINIUMS.

THIS extensive genus includes annual, biennial, and perennial species. The greater number belong to the latter section, and the majority are possessed of great beauty. The generic name is derived from the supposed resemblance of the spur to the head of a dolphin. The English name comes from the long spur resembling the hind claw of the skylark, and Bee Larkspur from the resemblance to the body of a large bee, which the yellow and black marginal hairs of the petals bear to that insect. Delphiniums somewhat resemble Aconites, but are readily distinguished by the prolonged spur of the calyx, which in Aconites assumes the shape of a hood; and they are destitute of the two peculiar mallet-like petals which are such a conspicuous feature in that genus. The fruit consists of one to five many-seeded follicular carpels. As ornamental border plants they have few equals. The prevailing colour is blue, and the shades of this in many instances is of such dazzling brilliancy as to render them general favourites. Many are strong-growing plants, and require support to keep them from being beaten down by wind and rain. This, however, must be done carefully and neatly, or they will be robbed of half their charms. The soil they delight in is rich loam or deep garden soil—not stiff loam, but what may be termed rich friable sandy soil. They are natives of Europe, Asia, and North America.

D. Ajacis.—This name by some of the old authorities is written Aiaeis, and is derived from the more or less striking marks on the petals resembling the letters A I A I. The beautiful Rocket Larkspurs are improved garden varieties of this species, much care having been bestowed upon them by the Germans. The different forms vary in height from 1 to 2 feet or more, and present a pleasing variety of colour. The seed should be sown where the plants are intended to flower, as they do not like transplanting. Sow in March or April according to the season, and thin out to about 6 inches apart. There are numerous forms with both single and double flowers. It was introduced to England in its original form upwards of three hundred years ago from South of Europe.

D. alopecuroides.—This is a dwarf perennial form of garden origin. The leaves are palmately lobed, and the trusses or spikes of bloom are long and very dense. Flowers rather small, double, bright blue tinted with rose. July and August.

D. Barlowii is a very fine garden form, which does not produce seed. It grows from 2½ to 3 feet high. Flowers large, semi-double, dark blue, shaded with bronze, with orange centre. July.

D. Brunonianum.—This fine plant is very rare; it is also peculiar from the very strong musky odour which pervades it. It attains a height of from 6 to 12 inches. Lower leaves stalked, reniform in outline, but divided into deeply cut segments; upper leaves tripartite. Flowers large, light blue, shading to purple on the margins; centre black. June and July, and dies down rapidly after flowering. Native of Western Thibet, at 14-18,000 feet elevation.

D. Beatsonii.—Flowers in dense branching spikes; individual flowers large and very double, intensely rich deep violet blue in colour with reddish centre. Height about 2 feet. July.

D. Belladonna.—Although an old border variety this is still one of the very best; it is quite barren, and consequently there is no means of increase save by division. It is very compact in habit, the usual height being about 2 feet. The flowers are large and of a lovely sky blue, a colour which attracts and pleases every one. It commences to bloom about July, and maintains a good succession.

D. cashmerianum.—A very handsome species, attaining a height of 12 to 18 inches. Leaves stalked, palmated with acute lobes, somewhat coriaceous in texture and bright green above. Individual flowers large, rich deep azure blue, with black and green centre. July. Native of the western Himalayas at 12,000 to 15,000 feet elevation.

D. Consolida.—The wild Larkspur of the English fields from which the beautiful varieties, both single and double-flowered, of what are termed branching Larkspurs have been raised. These beautiful annual flowers should be sown where they are intended to bloom, for they dislike transplanting. If sown in autumn they are sufficiently hardy to withstand our ordinary winters and come into bloom in spring; from the spring sowing they flower in June and July.

D. elatum.—From this plant, originally introduced from Siberia, we have now an immense number of garden varieties far surpassing the normal type in beauty. From amongst these we may

specially notice *amabilis*, a very ornamental variety for the back row in a border. Height about 5 feet, with a dense branching spike of azure blue flowers shaded with rosy lilac, with orange and white centre. Coronet, height 2 feet. An abundant and continuous bloomer. Flowers rich deep blue, orange and purple centre. Herman Stenger, height 4 feet. Bright violet blue; centre petals rosy pink. Spikes dense and branching. Flowers very double. Prince of Wales, a semi-double variety, about 4 feet high, producing long dense spikes. Flowers azure blue; centre white. Nahamah, height 3 to 4 feet. A wonderful free-branching variety. Spikes dense. Flowers large, dark blue tinged with bronze; centre orange brown. M. Le Bihan, height 3 to 4 feet. Spikes very dense. Flowers large and semi-double, bright rich blue; inner petals purplish rose. Le Mastodonte, height about 3 feet. Flowers very large, vivid blue, orange and white centre; indeed there is an almost endless variety of this beautiful flower.

D. grandiflorum.—This is also a Siberian plant. Height about 2 feet. Spikes dense and branching. Flowers large, dark blue, tinged rose; centre white. July. There is a white-flowered form of this species, album, and a double form having large double dark rich blue flowers with a metallic lustre. Height 2 to 3 feet. July.

D. nudicaule.—In this plant we have a total departure from the colours of all those enumerated above. It grows from 18 inches to 2½ feet high. Leaves deeply and palmately lobed. Flowers large: sepals bright, rich, velvety orange scarlet; petals bright yellow. It blooms in July, and is a most desirable plant for the border or rock garden. California.—W. H.



THOUGH the FRUIT CROP IN HEREFORDSHIRE is almost a total failure, there is a sprinkling of Apples and Pears in some orchards. Nuts and Filberts will also be very scarce.

— WE are desired to note that the WREXHAM HORTICULTURAL SOCIETY will hold their annual Exhibition on August the 27th, when about £100 will be given in prizes. The Hon. Sec. and Treasurer is Mr. J. B. Shirley, National Provincial Bank of England, Wrexham.

— A CORRESPONDENT (MR. J. LANE) informs us that there is a fine plant of *CATTLEYA CRISPA* now in bloom at Burston Rectory, Diss, Norfolk; it has sixteen flower spikes with eighty-four blooms. The plant is growing in a basket 20 inches square, and is a grand specimen, being about 18 inches high and 45 inches in circumference. It is perfectly healthy. The Rev. H. T. Frere has also some grand plants of other *Cattleyas*, and a fine plant of *Lælia purpurata* about the same size as the *Cattleya crispa*. Orchids, Pelargoniums, and Roses also seem to be special favourites, and they are grown with much credit to Mr. Frere and his gardener, Mr. W. Bolton.

— PERHAPS the most attractive department of the Royal Gardens, Kew, at the present time is the HERBACEOUS GROUNDS, where a very large proportion of the extensive collection of hardy plants are now flowering. Among them are many beautiful species that are far too rare in gardens, and it is surprising that some of the most attractive of herbaceous plants are almost confined to botanic gardens, or the few noted collections of private individuals.

— WE have received the following letter from R. Ernest Horsfall, Esq., of Grassendale Priory, Liverpool, relating to the MELON BELLAMORE HYBRID:—"I noticed in your report of the Royal Horticultural Society's meeting, in your issue of the 29th ult., that a Mr. Sidney Ford exhibited a new Melon called Bellamore Hybrid, and was awarded a first-class certificate. I conclude this was more or less an award for merit, and therefore wish to say that the Melon in question was raised a few years

since by Mr. George Morrall, gardener to Mrs. Horsfall of Bellamore Hall, Rugeley."

— WE are desired to note that the ATHERSTONE HORTICULTURAL SOCIETY will hold their first Exhibition on August 25th, in Merevale Park, by the permission of the President, W. S. Dugdale, Esq. Numerous prizes will be offered for fruits, flowers, and vegetables.

— "W. B." states that "A gold medal was awarded to Mr. Joseph Bramham, Liverpool, by the LIVERPOOL HORTICULTURAL ASSOCIATION, for his elegant and elaborate Rose Temple. It was the finest of its kind I have ever seen exhibited." This award was made after our reporter left the Exhibition, as also was a first-class certificate for furnace fronts and fittings to the same exhibitor.

— A CORRESPONDENT has forwarded a LIST OF PREPARATIONS OF THE PHYLLOXERA by Dr. Adolph Blankenhorn, of Karlsruhe. The preparations, which are intended for microscopical observation, represent both the leaf and root forms of the insect, all the stages from the egg to the full-grown insect being demonstrated.

— WE recently noticed a plant of BERBERIDOPSIS CORALLINA flowering very freely in the greenhouse at Kew. The coral red flowers are borne in pendulous clusters, and the contrast between the brightly coloured flowers and the rich green foliage is very pleasing. We have also seen this handsome shrub trained to walls with various aspects in several gardens, and if the position be moderately sheltered it appears to thrive equally as well as in the greenhouse, and is rarely injured by frost.

— A MANCHESTER correspondent informs us that "there is now an extremely beautiful display of RANUNCULUSES AT STAKEHILL HOUSE, the residence of Mr. S. Barlow, near Manchester. About two thousand plants, all of the Persian or florists' type, are in flower, and their brilliancy is astonishing. Mr. Barlow possesses a large number of varieties including all the best in cultivation, and very ably does he grow them, for rarely are these fine old flowers to be seen in such healthy condition as under his care."

— WE learn that Mr. RICHARD KIPPIST has retired from his post as SECRETARY TO THE LINNEAN SOCIETY. The Council will appoint his successor in October. Intending candidates should apply by letter to Mr. B. Daydon Jackson, Burlington House, Piccadilly.

— THE charming DENDROBIUM GOLDIEI was recently flowering very freely in Mr. B. S. Williams's nursery at Upper Holloway. A specimen which chiefly attracted our attention was bearing about five dozen of its beautiful mauve-tinted flowers.

— THE *New York Tribune* says, "It is authoritatively announced that the PEACH CROP in America will not be a very large one, as erroneous reports have made it, but an average crop, probably as large as that of last year. As this means the shipment of about two million baskets to this city, New-Yorkers may still enjoy the prospect of having a few Peaches now and then."

— ON Saturday last, as on several previous occasions, Messrs. Cranston & Co. of Hereford exhibited about ten thousand ROSES AT THE ALEXANDRA PALACE. These weekly exhibitions appear to be growing very popular, and the rapidity with which the blooms are disposed of early in the evening indicates the demand existing for good Roses at moderate prices.

— "A. Y." states that "DELL'S NEW HYBRID MELON is a good green-fleshed variety, which sets its fruit freely, possesses a fine flavour, and averages about 3½ lbs. in weight."

— ONE of the largest and most elegant specimens we have seen of the handsome ARAUCARIA EXCELSA var. NAPOLEON BAUMANN is growing in the conservatory at Shirecliffe Hall, Sheffield. It is 8 or 10 feet in height, in vigorous health, and well indicates the distinctness and beauty that mark the variety.

— A CORRESPONDENT writes us that MARVEL PEA is undoubtedly a great acquisition to the list of good Peas. It is a strong stout grower, being about 3 feet 6 inches in height, and a most abundant cropper, having fine pods well filled with large peas of excellent flavour, each pod containing nine peas of a rich green colour.

— AT the meeting of the Royal Horticultural Society on Tuesday last the flowers of LAPAGERIAS ROSEA and ALBA exhibited by Titus Salt, Esq., Milner Field, Bingley, Yorkshire, attracted great attention, for rarely have they been seen so fine. The flowers had been cut on the Friday previous for a garden party, but appeared very fresh. Mr. C. Anderson, the gardener, stated in a letter to the Committee that a span-roofed house is entirely devoted to Lapagerias, the display of blooms being now extremely fine. The strongest shoots of those sent had from six to twelve flowers springing from a single node; one of the largest sprays had when cut about seventy-nine flowers and buds. Both forms were uncommonly beautiful, but L. rosea was magnificent. The cultural commendation awarded by the Committee was very well deserved, for Mr. Anderson has evidently carefully studied the requirements of the plants.

— MARKET GARDENERS' GRIEVANCES.—Last Tuesday a numerously attended meeting of the principal market gardeners of the suburbs was held at the Bedford Head Hotel, Covent Garden, under the auspices of the Market Gardeners, Nurserymen, and Farmers' Association, to take into consideration their position in connection with future legislation affecting the cultivation of land. Mr. Decimus Clarke of Twickenham presided. Mr. M. Searle, the Secretary, produced a letter which he had received from Mr. Horace Scymour in answer to a request that Mr. Gladstone would be pleased to receive a deputation upon the subject. The right hon. gentleman intimated through his secretary that he should much wish to receive from the Association a written statement of their general object, when he could then consider whether the time had come for oral communication. He fully recognised the importance and propriety of full consideration of this branch of the case, which, as he took for granted, would not escape the attention of the Royal Commission on Agriculture. The meeting unanimously resolved to appoint a committee to draw up a statement of the grievances under which market gardeners were at present suffering, and to represent the same to Mr. Gladstone.

ROYAL HORTICULTURAL SOCIETY.

AUGUST 10TH.

THE meeting of the above date, though not an unusually large one, was well attended by exhibitors. The tables in the Council-room were occupied with the various collections of plants and flowers, Messrs. Veitch's Lilies, Mr. Bull's new plants, Mr. Cannell's Coekscombs, Balsams, and Coleuses, and the Society's Tuberous Begonias forming the chief feature of the display. Messrs. Carters' collection of Tomatoes in pots in the vestibule also attracted great attention, and Mr. Harrison Weir's Grapes were much admired.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. The exhibits before this Committee were not very numerous. Mr. J. Walker, Thame, Oxford, sent a specimen plant of a new selected Pea, an extremely prolific variety. On a space of about 12 square feet the plant was bearing 306 pods, many flowers also being open at the same time. It was recommended to be sent to Chiswick. Mr. Reuben Fowler, Bedale, sent a dish of Peas, a variety with very large pods, but found to be deficient in flavour and sugar. Mr. Gray, gardener to C. Seely, Esq., Brooke, Isle of Wight, exhibited a dish of Apples, very handsome in appearance but deficient in flavour. Letters of thanks were accorded to Messrs. Charles Lee & Son, Hammersmith, for fruits of Henson's Seedling Gooseberry, and to Mr. C. Lee, Hounslow, for a dish of Vicomtesse Hericart de Thury Strawberries.

Mr. Harrison Weir, Weirleigh, sent bunches of Champion Muscat, Venn's Muscat, and Madresfield Court Muscat Grapes, remarkably well grown, the bunches and berries large and finely coloured. A silver medal was awarded. Mr. C. Turner, Slough, contributed examples of Potato Early Bird, a handsome variety that is to be sent to Chiswick for trial. Messrs. Carter & Co., High Holborn, exhibited a collection of Tomatoes in pots. About fifteen varieties were represented, including the small-fruited varieties such as Red Currant and Cherry, as well as the large forms. A bronze medal was awarded for this very interesting group. Mr. McDoe, The Gardens, Hutton Hall, Guisborough, sent a fruit of Melon Marcellus, not of first-rate flavour but handsome. Mr. John Crossling, The Gardens, St. Fagan's Castle, Cardiff, also exhibited a Melon that was rather deficient in flavour. Messrs. Veitch & Sons, Chelsea, sent a number of plants of Seakale of the varieties Chiswick White and Lily White for comparison with the common form.

FLORAL COMMITTEE.—James McIntosh, Esq., in the chair. Mr. H. Cannell of Swanley, Kent, was accorded a vote of thanks for large collections of plants of considerable merit. Cockscombs were represented by a number of handsome plants, very dwarf, with large finely arched heads. The colours were various and extremely rich, the shades of crimson and pink being especially noticeable. "Cannell's Perfection Balsams" were also bearing large flowers of good form and of many different shades. A number of Coleuses were shown, including several fine varieties. Mr. W. Bull, King's Road, Chelsea, contributed a group of new and handsome plants, among which the most noteworthy were Dieffenbachia Leopoldi, a distinct form with velvety deep green elliptical leaves, each with a prominent white midrib; the habit was compact. Geonoma princeps, an elegant pinnate-leaved Palm; Brunsvigia Josephinae, an Amaryllid with a tall umbellate scape, bearing red flowers on long pedicels; Astrocaryum Malybo, a Palm with pinnate shining green leaves and broad pinnæ; Odontoglossum vexillarium rubrum, a deeply coloured form of that beautiful Orchid; Selaginella involvens variegata, a form of this tufted Selaginella with a few white branches; and Agapanthus umbellatus albus.

Messrs. J. Veitch & Sons, Chelsea, had a group of Liliiums, including several beautiful forms of *L. auratum*, were especially notable. *L. speciosum verum* was very beautiful, the rosy crimson tint being very clear. *L. tigrinum flore pleno* had neatly formed flowers, and *Lilium longiflorum albo-marginatum* had large pure white flowers and leaves edged with white. The neat little Angraecum Scottianum had several flowers. The pretty shrub Eucryphia pinnatifolia was also represented by flowering sprays. Mr. J. Walker, Thame, Oxon, sent a number of flowers of Dahlias, large, of excellent form, and comprising some distinct and handsome varieties. A vote of thanks was accorded. Mr. Charles Turner, Slough, exhibited about eight dozen blooms of Carnations and Picotees in very fine condition, and including a large number of handsome varieties. A pale primrose-coloured self variety named Lady Rosebery was very attractive.

From the Society's garden at Chiswick were sent a collection of plants of Begonia ascotensis, some of which had been grown indoors and the others outside. The flowers of the latter were rather darker in colour, and the leaves were smaller than the others, but the plants were nearly equally floriferous. A large group of handsome Tuberous Begonias was also contributed, the flowers being very large and the colours bright; also double Pelargoniums and Pentstemons. Messrs. Daniells, Bros., Norwich, sent flowers of Godetia Flag of Truce and Lady Albemarle, the latter of a bright rosy crimson tinge, and the former white. The General Horticultural Company sent a collection of handsome Zinnia blooms, very bright in colour and symmetrical in form. A vote of thanks was accorded. Mr. R. Gray, gardener to the Earl of Stanhope, Chevening Park, Kent, was accorded a vote of thanks for blooms of seedling Begonias, very bright in colour. Mr. J. King, gardener to G. Simpson, Esq., Wray Park, Reigate; and Mr. A. Eckford, gardener to Dr. Sankey, Sandywell Park, Cheltenham, contributed a number of Begonias and Coleuses. Mr. Solloway, Beaconsfield, Davenport, Stockport, sent flowers of a rich purplish blue seedling Viola. Robert Warner, Esq., Broomfield, Chelmsford, exhibited a plant of Cypripedium Warneri, a cross between C. Schlimii and C. Sedeni; the flower was of moderate size of a rosy colour.

Some extraordinarily fine flowers of Lapageria rosea and alba were exhibited by Titus Salt, Esq., Milner Field, Bingley, Yorkshire (gardener, Mr. C. Anderson). Not only were the individual blooms of great size and excellent form, but they were borne in unusually large numbers; in some instances as many as a dozen flowers were produced at one node. These superb examples were greatly admired, and the Committee accorded a vote of thanks and a cultural commendation. Messrs. F. & A. Smith, Dulwich, exhibited a collection of Balsams that were bearing remarkably well-formed flowers. The strain was commended. First-class certificates were awarded for the following plants:—

Eucryphia pinnatifolia (Veitch).—An attractive Chilean shrub with shining pinnate leaves and serrate margin. The flowers are borne in the axils of the leaves, usually two at the apex of the shoot. The petals are broad, roundish, and white, the centre of the flower being occupied with numerous stamens somewhat in the style of the Hypericums. The flowers possess an agreeable fragrance and bear some resemblance to the Mock Orange. It is quite hardy in the Coombe Wood Nurseries, where it thrives freely.

Lilium speciosum gloriosoides (Veitch).—Flower of moderate size; divisions narrow, reflexed, half white, the lower portion near the centre of the flower spotted with red. Very distinct and pretty.

Lilium auratum virginale (Veitch).—A lovely variety of this handsome Lily with large flowers, white, with a clear yellow band down the centre of each division.

Lilium auratum platyphyllum (Veitch).—A variety with enormous flowers, 9 or 10 inches in diameter, the divisions about 4 inches across, slightly spotted, and marked with yellow in the centre.

Begonia Mrs. Sheppard (Veitch).—A tuberous variety with large white flowers, and moderately compact in habit.

Picotee Alice (Turner).—A pale yellow ground variety, slightly streaked with reddish crimson; the blooms of good form and substance.

Picotee Ne Plus Ultra (Turner).—Also a yellow ground form, with a reddish streaked edge.

Coleus Pompadour (King).—A very distinct and peculiar variety with deeply crenated leaves, marbled, spotted and streaked with crimson, pink, green, and yellow.

Hypolepis millefolium (G. F. Wilson, F.R.S.).—A second-class certificate was awarded for this elegant New Zealand Fern, which Mr. Wilson has found quite hardy at Weybridge. It has been out in the rockery for the last two or three years, and not protected in any way. Its finely divided foliage renders it particularly attractive.

LECTURES.—During the afternoon Professor G. Henslow delivered a short lecture upon the plants exhibited. He commenced by referring to a fine group of Lilies introduced by Mr. C. Marics, collector for Messrs. Veitch in Japan. It included a *Lilium auratum* var. *platyphyllum*, with a very large blossom but with the foliage of *L. speciosum*, from which *L. auratum* is usually very distinct in having narrow leaves. Several fine plants of *L. auratum* var. *virginale* (considered the same as var. *Wittei* by Mr. Elwes), and a new variety of *L. speciosum* named *gloriosoides* by Mr. Baker, having strongly incurved petals, were also noticed. The lecturer referred to Mr. Tillery's experience in the difficulty of raising intermediate hybrids—the seedlings of *L. speciosum* crossed by *L. auratum* or *vice versa*—in either case being almost the same as the female parent. The great development of the tubercular epidermal processes in some species afforded an illustration of a method of hindering crawling insects from extracting honey, which would not be of service to the plant in not pollinating it. *Eucryphia pinnatifolia*, of which some fine blossoms were exhibited by Messrs. Veitch, is one of four species, two being natives of Chili and two of Tasmania. This diversity of habitat, like the Fuchsias of New Zealand and South America, appears to indicate a former union between South America and those islands long since severed, but still retaining certain species, which indicates their former continuity. A fine series of Coleuses sent by Mr. Cannell, and a variegated Croton from Mr. Bull, furnished material for remarks on variegation, and the lecturer suggested that possibly variegation may be referred to two distinct conditions. In the case of white or yellowish foliage it was found to be by Prof. Church an arrested state resembling almost colourless seedlings, and even a similar state to colourless parasites, so that every uncoloured cell might be almost regarded as parasitically attached to its neighbouring green cell. Brightly coloured foliage, however, was a different state, for the colouring matter was (not like green chlorophyll) in the epidermis, as it is in petals, so that the Coleus had, as it were, a transposition of colour from its proper locality into the leaves. Moreover, green chlorophyll was often present, but concealed below the purple.

A group of *Celosia cristata* or Cockscombs called for the remark that it was often impossible to distinguish between a "monster" and a "variety." This plant was in a fasciated condition, usually regarded as a fusion of several stems into one, as may be often seen in Asparagus and in boughs of the Ash tree. A certain group of plants from South America (*Podostemonaceæ*) have species where the stem seems to be normally fasciated.

Mr. Frank R. Cheshire followed Prof. Henslow with a most instructive and entertaining lecture upon the structure of the bee in relation to gathering honey and pollen from blossoms. By the aid of a number of clear and elaborate diagrams he demonstrated the general structure of the insect in a concise and intelligible manner, the mouth and tongue being carefully explained. The eye was also fully discussed and illustrated. The importance of the markings and colours of the corollas as guides and attractions to the bee in its search for honey was referred to at length, and many other interesting facts were discussed. A unanimous vote of thanks to the lecturer concluded the meeting.

MARICA (CYPELLA) CÆRULEA.

THE lovely Iridaceous plant represented in the annexed engraving is worthy of cultivation by all who possess a stove, its charming lavender and orange-tinted flowers being freely produced, and the fugacious character of the individual flowers is amply compensated by a long succession. If the flowers are picked and placed in a shallow glass dish with a few blooms of the pure white *Tabernæmontana coronaria* fl.-pl., with or without an edging of *Adiantum gracillimum*, they are fit to grace the boudoir of a princess.

Marica cærulea, like its congener *M. gracilis*, is easily propagated by division of the rhizome, each node very quickly

making a vigorous young plant if potted in a light compost consisting of peat, leaf soil, and sand in equal proportions, and plunged in a bottom heat of 80°, with a moist atmospheric temperature of 75° to 85°. When rooted each plant may be repotted into 60-size pots, employing similar compost, and again plunge them. In fourteen days the plants will be ready for shifting into 48-size pots, in which they may be flowered the following spring

and summer if the plants are generously treated throughout the growing season. At this potting a compost of a richer character should be used, consisting of fibry loam, peat, well-decayed cow manure, and sand in equal proportions. The drainage should be thoroughly efficient, as during the growing season the Marica delights in an abundant supply of water overhead and at the roots. Place it as near to the glass as possible in the stove or



Fig. 29.—MARICA (CYPELLA) CERULEA.

intermediate house, using just sufficient shade to prevent scorching. As the days shorten expose the plants to the full influence of the sun and a freer circulation of air in order to consolidate and mature their growth, gradually decreasing the supply of water at the roots, and giving just sufficient through the winter months to keep the foliage fresh. On the return of spring the supply of water and heat is increased, and in a short time the lovely flowers

amply repay the cultivator for his pains. After flowering they should be placed in pots a size larger, employing the above compost, and may be grown on to any size, or they may be flowered in the same pots for several years.—J. U. S.

RED SPIDER ON VINES.—This season I have had some Vines infested with Camellia spider. I give it this name, as I believe it

is different from the ordinary red spider. Two large Camellias that were infested with this spider were placed in the vinery, and from them it got on to the Vines. It seems to attack the upper surface of the leaf instead of the under, and it increases very rapidly. However, from Camellias sponging and syringing will banish it. The inexperienced may not have noticed that it is a spider that attacks Camellias when the foliage of the plant on the upper surface appears unsightly—browned as if by thrips—and when the under surface is quite clean.—R. M. A.

NEW AND CHOICE PLANTS.—No. 3.

ADIANTUM BAUSEI (Wills).—Of the large genus *Adiantum* there is perhaps scarcely a more remarkable form than this one, with which the majority of readers of the horticultural periodicals are now well acquainted. Numerous commendatory notices of it have appeared from time to time, but the following observations may be admissible. It is reasonably regarded as a hybrid, and I am not aware that any critical pteridologist has ventured to publicly dispute the facts advanced in support of that view, notwithstanding the peculiar opinions that still exist upon the subject of cross-fertilisation in Ferns. So far as I can learn, the mode in which it was obtained was very simple: Spores of *Adiantum trapeziforme* and *A. decorum* were sown together in one pot or pan, and among the numerous young plants produced of the two species was one that appeared intermediate in character. This was carefully attended, grew rapidly, still preserving its distinct appearance, and ultimately produced an abundance of spores. These were sown and, strangely enough, reproduced the parent exactly. This is peculiar, for few true hybrids, we are told by the scientists, are fertile, and when they are the offspring usually approaches more closely in resemblance to one of the parents. However that may be I know not, but the fact remains that this Fern, which is as much entitled to be called a hybrid as any flowering plant of which the parentage is known, is yet more fertile than many Ferns that are commonly regarded as species. These are matters of considerable interest, and notwithstanding the great advances that have been made in recent years there is undoubtedly much more to be investigated.

When specimens of *Adiantum Bausei* were first exhibited at one of the Royal Horticultural Society's meetings I did not form a very favourable opinion of it as a decorative plant, although it was honoured with a first-class certificate. The fronds and pinnules were drooping so much that the plants appeared to be either suffering from recent potting or from being insufficiently supplied with water, but since then I have seen it in much better condition. The fronds have a graceful bending or drooping habit, and the pinnules are also slightly deflexed. The plant resembles *A. decorum* in habit, but in size it is intermediate between that and *A. trapeziforme*. Its very distinct and elegant appearance can be seen to the best advantage in the General Horticultural Company's Melbourne Nursery, Anerley, where one house is now partially filled with young plants. It is very free in growth, but, notwithstanding that, it is advertised as suitable for the greenhouse; judging from my experience of it I think a stove temperature suits it better.

It bears the name of its raiser, Mr. Bause, who has so great a reputation as a skilful hybridiser.—R. L.

CHAPTERS ON INSECTS FOR GARDENERS.—No. 9.

NEW SERIES.

WE now come to the order Neuroptera, also named familiarly the order of the Netwings, from the nervures, which are so well defined in the wings of most of the species, appearing netted or interlaced. Here, as in the preceding Hymenopterous order, we have insects furnished with four wings and capable generally of flying with much rapidity; but there is an absence of the armed tail which distinguishes many groups of the bees and sawflies, the only exception in this order being amongst the scorpion flies. Their tail weapon, however, has not the character of a sting. Dragonflies, it is true, which form a conspicuous section of the order, are popularly reputed to be "horse-stingers," and on this account some persons endeavour to keep clear of these insects. They have no wish or intention to interfere with either human beings or horses or any domestic animals; other insects are their special game, and upon these the dragonflies operate, not by a sting but by powerful jaws. The order Neuroptera is the only order of insects, we believe, that includes no species that work mischief in the garden or upon the farm; but, on the other hand, there are several genera that occur in or about gardens that by their proceedings help to reduce the numbers of destructive insects. In hotter countries than ours Neuropterous insects cannot receive

unmixed praise, for amongst them is reckoned the much-dreaded white ants or termites, species that occur not only in Africa and America but also in some parts of Europe. Fortunately it does not seem probable that any of them will establish colonies on these shores. The termites, let us note in passing, are chiefly remarkable as destroyers of wood in the south of France. *T. flavicollis* has done much damage to the Olive and other choice trees; and in some towns of Spain, where the houses are chiefly of wood, the mines of these creatures have actually caused the downfall of old buildings. In diligence and sagacity the termites are little inferior to the ants that belong to the Hymenopterous order, while they are even more prolific.

The difficulty of forming an arrangement of insects upon the transformations they undergo is curiously exemplified by the habits of the Neuroptera. The mature insects are associated by a well-marked resemblance they bear to each other, but in some of the groups both larvæ and pupæ are aquatic, and in some they live upon the leaves or branches of trees, though in both the larvæ are mostly predacious. Then the aquatic species have pupæ that are active like the larvæ until the eve of their change, while the terrestrial species become quiescent for a time after throwing off the larva skin. This difference, however, serves to break the Neuroptera into two sections. The Ephemeridæ or mayflies are the first family, distinguishable by the inequality of their wings from the dragonflies. They have the hind wings so much less than the fore wing that they are scarcely noticeable; the body is very slender, and the tail is furnished with two or three long bristles. It is an insect that has sometimes been called the day-fly, on the supposition that as a fly it only exists for a day, and actually in the case of some of the Ephemeræ, the life of the fly seldom lasts more than a day or two; but then it must be remembered that previously the insect existed in its preparatory state for nearly a year; some estimate the aquatic life as longer than that in several species. Amongst the dragonflies there may possibly be two years occupied by the larva and pupa stage. The grub or larva of mayflies is not unlike the fly, lacking wings; on the sides are a singular row of gills by which the insect breathes and rows. Some of these larvæ are in the habit of rowing after their prey, but many of them live principally in the mud, where they feed upon decaying animal or vegetable matter. The common mayfly (*E. vulgata*) is a favourite bait for certain fish, and it is asserted that in some districts on the continent the flies of this group are occasionally swept up in such quantities that the gardeners make use of them for manure.

Dragonflies are not particularly garden insects, but they are often to be seen performing their rapid evolutions above the paths where a garden is not far distant from a stream or pond. Sometimes these flies may be noticed in places a mile or two from any spot where they could have been bred. The many insects that haunt gardens are an attraction to dragonflies, and the number that one of the large individuals will seize and kill is considerable. These are not all of them eaten "clean up;" it appears as if a large proportion of the captures are only tasted and then dropped. It is likely that dragonflies received the name of "horse-stingers," because when they were seen hovering about horses intent upon catching flies that were persecuting the quadrupeds, persons hastily supposed these were the objects of attack and not the insects. The large dragonflies pounce upon insects of all sorts, they will also seize spiders and centipedes if they have an opportunity; and since their life is not, like that of the mayflies, of very brief duration, they clear off some of the insects that are hurtful to vegetation amongst other species. They are much aided in their hunts by the peculiar structure of the wings, by which they are able to fly either backwards or forwards without turning round. The small dragonflies that are placed in the genus *Agrion*, *Colepteryx*, &c., and which repose with the wings raised over the back, although they too are predacious, have a feeble flight, and confine themselves to small prey. These are seldom noticed at any great distance from the rivulets or ditches in which the larvæ lived, and above which the flies obtain their food. To the dragonflies of this family it is that the French have given the appellation of "Demoiselles" from their elegant movements, and in the sunshine a party of them exhibiting various tints of blue, green, and gold are very pleasing to the eye.

The Libellulidæ are distinguished from the *Agrionidæ* by the shape of the head, which is rounded and not hammer-shaped; these also when they have settled place their wings horizontally. In most species the eyes are of extraordinary dimensions, seeming to occupy nearly the whole of the head. The genus *Libellula* in its *L. depressa*, one of our common insects, offers a good example of the middle-sized dragonflies. The sexes of this species differ in colour, the female being golden brown and the male a dull blue tint. The monsters of the race chiefly belong to the genus

Æshna, specimens of which measure 4 inches across the wings. The larvæ of all the dragonflies are voracious, and those that develop into the large species are proportionably large and strong, being able to master most aquatic insects, or even young fish. Occasionally, however, they are in their turn attacked by the water beetles and conquered. In the family *Libellulidæ* the larvæ is furnished with a singular apparatus, which has been called a mask; it is an enlargement of the lower lip, and when not in action it folds over the mouth. When near the object it wishes to seize the larvæ thrusts this forward, displaying what looks like a jointed bony tongue armed with a pair of nippers. The pupa of a dragonfly is as active as the larvæ, or nearly so, until just upon the close of its aquatic life, when it crawls up the stalk of some water plant, and remains quiet waiting for the pupa shell to burst. When this event happens the fly shows much dexterity in escaping from its prison, and in drying its filmy wings, which are quite small at first, but expand as the fly somehow forces air into them from the body. The larvæ of the *Libellulidæ* are mostly stout, those of the *Agrionidæ*, being of slender proportions, approach both in size and figure those of the *Epheméridæ* or Mayflies. The *Pilidæ* or stoneflies represent a small group allied to the mayflies, with aquatic larvæ, and perfect insects that are small-winged and of sluggish habit, therefore easily caught by those anglers who require them sometimes as bait.—C.

FLORAL DEFENCES.

THE following is the substance of a lecture delivered to the members of the Liverpool Naturalists' Field Club by the President, the Rev. Henry H. Higgins:—

A market gardener wishing to improve his strain of Cucumbers frequently proceeds to select a flower from a Cucumber plant in some points finer than his own, and to place pollen from the new flower on the stigma of a flower belonging to the plant already in his frame. The flower matures, yielding a Cucumber apparently of the old sort. He, however, sows the seeds from this Cucumber, and from them he expects to grow plants bearing better Cucumbers. He is often successful. He finds that pollen from the new flower has done its work, and the gardener for his pains now has finer Cucumbers for seed and for the market. This is called cross-fertilisation (*Xenogamy*).

What the gardener does for his Cucumbers Nature does for many of her flowers. She takes the pollen from a distant flower, and brings it home to the stigma of a flower of the same kind, but not growing on the same plant. The result is that the seeds are stronger than they would have been if the flower had been fertilised by pollen from another flower on the same stem.

How does Nature bring the pollen from a distance? Sometimes by the wind. On a sunny day towards the end of February tap with your walking stick a branch of Hazel bearing catkins—a cloud of yellow dust is carried away by the wind; this is pollen, and some of it will fall on the tiny crimson flowers borne on the twigs of Hazel bushes far away, and they will produce fine clusters of ripe nuts when the proper time arrives. All catkin-bearing and cone-bearing trees, together with Grasses and Sedges, are fertilised chiefly by the wind.

Tennyson refers to the profusion of pollen dust thrown off by the Yew tree in his "Holy Grail," near the commencement of the poem.

"O brother, I have seen this Yew tree smoke
Spring after spring for half a hundred years."

Sometimes water conveys the pollen. *Vallisneria* (fig. 30) has flowers at the bottom of pools or slow streams in Italy. The pollen flowers when ripe are detached, and, rising to the surface, the pollen floats around. The pistil-bearing flowers are on stalks like corkscrews. When about to blossom the corkscrew stem straightens upwards and the pistil flower reaches the surface, where it meets with the pollen floating and is fertilised. After a few sunny days to ripen the seed the plant begins to twist up the corkscrew stem again, pulling the flower down; and the twisting goes on till the seed case is buried in the soil at the bottom of the stream, where the seeds can germinate and grow into fresh plants of *Vallisneria*.

Some tropical flowers are fertilised by birds. A climbing plant, mentioned by Mr. Belt, in Central America

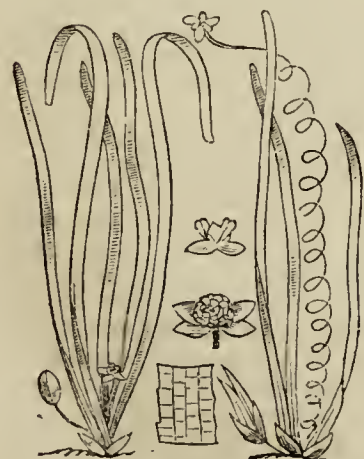


Fig. 30.—*Vallisneria spiralis*.

(*Marcgravia nepenthoides*, fig. 31) has flowers suspended in an inverted umbel, as if they hung from the tips of an opened parasol. Where the handle of the parasol would be the plant forms a cluster of little pitchers containing honey. The honey attracts insects, and the insects humming birds, which, whilst feeding under the floral canopy,

dust their beautiful heads and crests with pollen, and then dart away to fertilise other blossoms.

Most frequently the pollen is conveyed by insects. Many of us have seen in the course of a summer's walk a humble bee banded with black and gold, with his muzzle deep down amongst the purple florets of a large Thistle head. He is helping himself and the plant at the same time—himself to the nectar which he loves, and the plant to the pollen of another like flower previously visited, thereby dusting his limbs and coat with life germs of priceless value to the Thistle on which he is feeding. The insect and the plant may be varied in a thousand ways, still the object and the result of the visit are the same—the insect seeks the nectar, and the plant receives the pollen, without which its seeds would remain unproductive.

Not all insects are alike suited to fertilise every kind of plant. Some plants invite a butterfly, others a night-flying moth, whilst not a few are willing to be "at home" to a variety of flying visitors, the only stipulation being that they must be of suitable size, shape, and habits to bring with them pollen of the right kind, and to leave it in

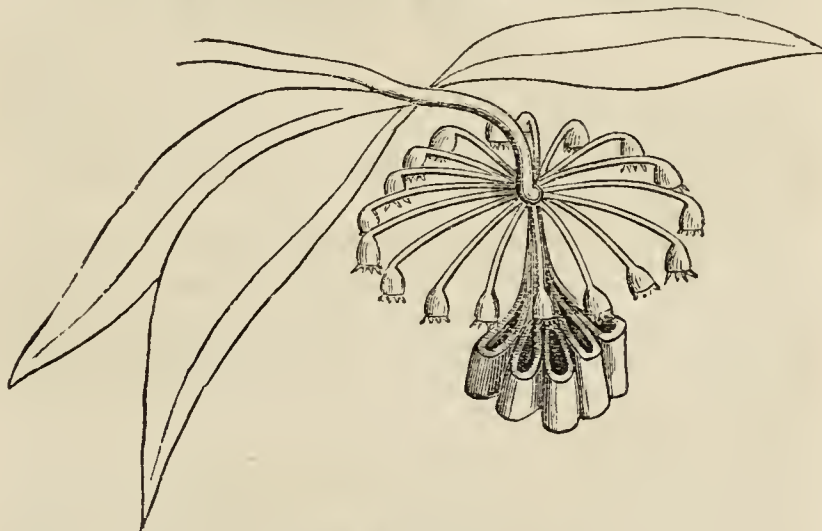


Fig. 31.—*Marcgravia nepenthoides*.

the right place. Now, other creatures besides these desirable guests love honey, especially ants, woodlice, plantlice, earwigs, and a whole host of small creeping things which prowl everywhere and are always hungry. These, as we shall see, are in many ways unfitted to fertilise most flowers. What, then, will be the fate of a flower exposed to such marauders and rifled of its precious nectar? The gentle butterfly or the helpful bee will not care to dally with the plundered blossom; no pollen will be brought, and, so far as concerns progeny, its floral life will have been spent in vain. Hence the necessity for flowers to have guards suitable for keeping away unwelcome visitors—in other words, "floral defences." You will see at once how the subject differs from that of contrivances to attract and admit friendly visitors. The latter subject has been much longer before those of the public who are interested in such matters, and may be found fully treated in the works of Mr. Darwin, Sir John Lubbock, Dr. Ogle, H. and F. Muller, and others.

Floral defences had been much less studied when, in 1878, first appeared an English translation of Dr. Kerner's work on "Flowers and their Unbidden Guests." To this work I am indebted for many of the facts which I have the pleasure of bringing before you on the present occasion.

Perhaps the simplest of all modes of defence is seen in plants which turn their flowers away from the stem; for the stem is the only road by which a creeping thing can reach a flower. Examples are very numerous. A common Snowdrop will serve for an illustration. It must be evident that a creeping insect would find great difficulty in getting down the slender neck of the flower, and in crossing the incurved edges of the three white outer segments of the perianth, after which it would have to surmount the green-tipped segments, at the base of which on the inner side the honey lies. A bee has no such difficulty. Dr. Whewell speaks of the pensile position of the Snowdrop flower as conducing to its advantage. In his days no one had even suspected how. He calls attention to the fact that the nodding of the flower is occasioned by the force of gravity overcoming the elasticity of the flower stalk, and points out that if the earth were smaller than it is the flower would not droop so much, so that the whole mass of the earth from pole to pole is actually employed in keeping the flower of the Snowdrop pendulous on its graceful stalk.

One of the most simple kinds of floral defence is used when the pollen, nectar, and pistil of a flower are shut up in a box with a spring lid, too strong to be raised by little impertinent wanderers, but easily lifted by a friend. Such a box you have often seen in the flower of the garden Snapdragon, *Antirrhinum majus*. No ant or other small insect can raise the lid, but when a lusty bee comes he shoves his head under the lid, and shortly almost his whole body disappears. Having finished to his satisfaction the little business on which he came he backs out, his legs and body dusted with the yellow pollen from the anthers ready to be carried to another flower.

But why should an ant be unwelcome? Because its polished

armour is unsuited for carrying pollen. But even if it could carry away a few grains of pollen on coming out of the flower, what a journey it would have to take before it could reach a Snapdragon on the other side of the garden, or on another flower bed—what sandy deserts of gravel walks, what forests of Box edgings it would have to traverse, with little chance that the few pollen grains would hold on to their resting places! To the bee the journey is a small affair—the work of a few seconds. Gently press the sides of a Snapdragon flower and its mouth will open like that of a nestling bird. You may see the pistil, but may find no grains of pollen on it. Very soon after it is fertilised the flower loses its springiness, and the mouth is no longer shut. Ants may now enter and feed on the nectar that is left. The plant has no longer any interest in keeping them out.



Fig. 32.—Petal of *Nigella*.

The petals of the plant known as Love in a Mist, *Nigella* (fig. 32) develop a ladel-shaped nectary with a lid which small insects cannot raise; but the hive bee lifts the lid with great ease.

The *Calceolaria* hides its nectar on the lappet of the slipper, which is turned in so as not to be seen from the outside. It is almost impossible for a creeping ant to reach the nectar; but the bee settles on the toe of the slipper, bears it down by its weight, and looses a pair of springs, which turn up the lappet with its nectar. What the bee does may be imagined; but it is far better when the time comes that it should be observed.

The protective value of prickles against intruders attempting to climb to the flower from the ground is too obvious to require much explanation. The flower head of the Carline Thistle and a few bracts from the involucre of the Corn Blue-bottle will serve to show how very decidedly Nature can give notice to a snail creeping up the stem—no road this way. Well, you see, we are observing the results of long ages of development, wherein mutual relations between animals and plants have been established; and now they are at least to some extent effectual.

Thorns, which are modified twigs, serve to protect the whole plant rather than the flower; yet the hedges in May owe their snowy honours to a plant selected, not for its beauty or its sweet perfume, but because of its strong and sharp spines. The thorns of some tropical plants are fearful weapons, and Mr. Belt mentions a double capacity in which the thorns of the Bull's-horn Acacia (fig. 33) defend

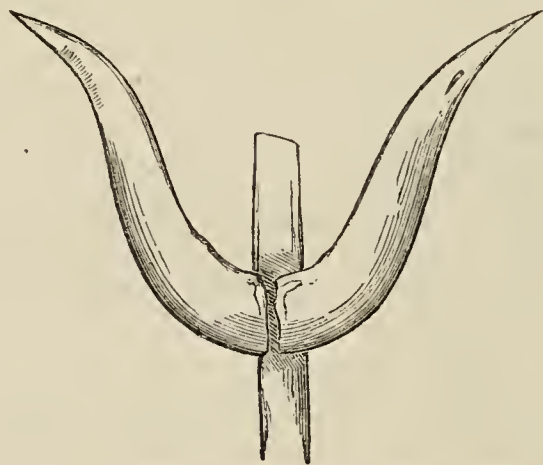


Fig. 33.—Bull's-horn Acacia.

the plant on which they grow. When young the interior of the thorn is filled with a sweet pulp, on which a very warlike ant, called the Two-coloured ant, loves to feed, making a hole for that purpose near the point of the thorn, which does not seem to be put to any inconvenience by the loss of its inside. The Two-coloured ants use the hollowed thorns for habitations, laying their eggs and bringing up their young in them. If a branch of the tree be shaken the ants swarm out from the hollow thorns in myriads, and as they both bite and sting severely no animal ventures to browse upon the branches; and a much more dangerous enemy, the Leaf-cutting ant, is never known to strip of its foliage a tree thus defended. The grateful tree in return for protection produces on its leaves little cups of honey, of which the ants are very fond; and for their more solid food each leaf bears appendages, which under the microscope look like golden Pears. The ants visit these from time to time, and when the little Pears are ripe the ants nip them off by their stalks and carry them away to their nests.

Viscid Stems and Leaves.—Many common plants are distinguished by such names as glutinosa, or viseosa, referring to the sticky surfaces of their leaves or stems, which serve to protect the flowers from the visits of woodlice, plantlice, earwigs, and other creeping things.

The Common Butterwort, *Pinguicula*, has its leaves in such a slimy condition that few insects are able to creep over them, yet it is not to be reckoned amongst the carnivorous plants. Beautiful diatoms have been found in its slime, apparently in a thriving condition.

A very curious modification of this kind of defence is found in plants which secrete a milky juice in little delicate capsules just

beneath the outermost skin of the flower stem. A species of Lettuce is an example. The ant is able to creep up the lower part of the stem without hindrance, but as soon as it approaches the flower the sharp hooklets of its feet pierce the little milk-bladders, and are soon clogged with the white fluid, which, on exposure to the air, becomes like birdlime. The poor insect, in sad trouble, passes its feet through its jaws to get rid of the sticky juice, but this only makes matters worse; the jaws become clogged, and at every struggle the claws make fresh orifices through which the milk oozes, the result being almost always fatal to the ant.

(To be continued.)

THE KNOWFIELD NURSERIES, CARLISLE.

THE Knowfield Nurseries, of the firm of Little & Ballantyne, are only a short distance from the now crowded town of Carlisle, and the route to them is very picturesque. Although the firm is carried on under the above title the only proprietor of the nursery, which has been established about eighty years, now is Mr. Watt. Mr. Baxter Smith was formerly a part proprietor, and his extensive experience was of great value to the firm, and the nursery became one of the most noted of provincial establishments. The entrance to the nursery is very imposing. The drive from the entrance, a quarter of a mile long, is quite straight, and for several years it has been a great object of this firm to render this drive as attractive as possible, and hence the side borders are planted with much taste with Conifers in great variety and of dwarf habit. Thujas, Retinosporas, Junipers, and Hollies in choice varieties are planted in panels, and the effect is unique. The lesson to be learnt by the visitor cannot but be useful, for he is at once impressed with the great value of such plants as are artistically disposed in this splendid drive.

At equi-distances in this drive are openings through which the visitor can inspect the several quarters devoted to the rearing of the shrubs, fruit, forest trees, Roses, &c., which are grown in immense numbers. The glass department is situated at the top of the drive, and consists of many houses filled with Vines in pots, and an excellent selection of choice fine-foliaged and flowering plants. Very noticeable were Camellias, Begonias, Gloxinias, and Pelargoniums in choice varieties; also Orchids, Ferns, new *Draenas*, and *Crotons*, all bright and healthy. The plant department is altogether very satisfactory, and Mr. Watt intends to still further improve and develop it. There were also several houses devoted to Roses and Clematises. The propagating houses are very numerous, they are all small span-roofed. Roses, Conifers, Rhododendrons, Clematises are budded or grafted in these structures and then transferred to the frame ground, which is about an acre in extent.

The alpine and herbaceous department, which is ensigned behind tall Beech hedges, and is very complete. Anemones, Hepaticas, Pyrethrums, perennial Lobelias, Aquilegias, Anthericums, Cypripediums, Delphiniums in great variety, including *D. nudicaule*, with its charming orange-red flowers; Funkias, Geums, Helianthemums, Enocheras, and numerous varieties of hardy Orchises, Phloxes, Potentillas, Primulas in twenty-six hardy species and varieties, and Saxifrages. *Serophularia nodosa variegata* was very fine; it is finely variegated with white and blotched with green, is perfectly hardy, and invaluable for either spring or summer arrangements. Another plant we must not omit to mention—viz., *Lamium aureum*, with beautiful golden yellow leaves streaked with silvery white, and as dwarf as the Golden Feather. Well represented also are hardy bulbs, ornamental Grasses, Bamboos, hardy aquatic and bog plants; of the latter we observed *Aponogeton distachyon*, which flowers nearly the whole of the year. Dahlias and other florists' flowers are also grown very extensively.

Near to the manager's house, Mr. Gregg's, is the original specimen of the copper-coloured Oak, *Quercus pedunculata nigra*, raised here some thirty years since. It is surprising that this fine tree has not been more extensively planted. Its small dark serrated leaves would associate well with most deciduous trees and be of service to the landscape artist. In traversing over nearly 130 acres the visitor cannot fail to be struck with the extensive "breaks" devoted to forest trees, fruit trees, Coniferæ, Roses, which owing to the elevated position of the nurseries and their northern locale, assume a sturdy hardy character, and are available for planting in bleak or cold districts. The Corsican Pine is grown in thousands, there being an increasing demand for planting forests and woods owing to its quick growth, and also from the fact that ground game seldom touch its bark. *Abies Douglasi* is also largely represented; it has been found valuable for planting in sheltered places where Larch does not succeed. Of the latter the stock is very large, and has been mostly raised from seed collected from healthy trees grown in high altitudes in Scotland, and from Tyrolean seed.

To describe the great variety of Coniferae, ornamental shrubs, &c., is entirely beyond your space. Suffice it to say that every variety of Coniferae is well represented. Of the Abies there are over thirty forms; Araucarias, Arthrotaxis, Biotas in fourteen varieties; Cephalotaxuses, and the graceful Cryptomerias, with Piceas; whilst of Pinuses there are upwards of forty forms. The new weeping Wellingtonia pendula nova is a fine novelty, and for a specimen lawn plant it could not be easily excelled. Deciduous or flowering shrubs, and ornamental trees are numerous and well represented. There are nearly thirty varieties of Hollies, some of them fine shrubs and well suited for planting for immediate effect, the firm devoting a special attention to them.

The quarters devoted to fruit trees exceed 10 acres, the soil being well adapted for producing healthy trees of a sturdy nature for planting. Apples are numerous, but preference is given to those which are free and hardy. Of Pears there is a great collection, some double-grafted on their appropriate stocks, and every form of tree is adopted. The Rose forms an important feature, large numbers being grown for home and export purposes.

Many acres of ground are adapted to growing farm seeds, both roots and cereals. Any notice of this establishment would be far from complete without mention of the fine seed warehouses, store-rooms, and offices, which are extensive and substantial. The building in the city is the native red stone, and is of the Elizabethan style of architecture. It has a commanding and imposing appearance; indeed the firm may be fairly said to have inaugurated a new era in the street architecture of this border city. Adjoining this is a warehouse for agricultural seeds with connecting floors, each 90 feet long by about 30 feet wide; while in an adjoining street there are also three flats each 60 feet long by 30 wide, these containing the various mechanical appliances for cleansing and preparing the various seeds. In summing up our remarks we may safely say that every department bears the impress of care and skill, and the whole seems guided by a masterly hand.—B. C.

DRAINAGE OF LAND.—No. 2.

IN resuming my remarks on this subject I will first draw attention to a garden constructed a hundred years. In this I find a good main drain running through the centre of the garden with a proper fall. It is built of brick, is about a foot in width, and varying from 3 to 5 feet in depth in the garden, and of course diminishing gradually to the outlet. After leaving the garden it is possible that a drain like this has to pass through various plantations of trees before finding an open course. If such a drain does not receive yearly attention the tree roots will find their way into it, and in a short time become so matted as to obstruct the watercourse. This being the case in the main drain, smaller drains will soon become stopped, and if these are not cleared out the soil will become sour, the vegetables will not grow satisfactorily, and the fruit trees become unhealthy. To those possessing such a garden and wishing to make it profitable I offer the following advice. As early in the autumn or winter months as time can be afforded begin by thoroughly clearing out the main drain. In doing this and by paying a little attention the outlets of the smaller drains may be noticed, and save considerable trouble in tracing them after. The main course being made free, attention must then be turned to the cross drains, lifting whatever has been employed for the watercourse, cleaning them thoroughly, relaying, and then covering them with 5 or 6 inches of rough material, such as clinkers, broken bricks, or any hard substance that may be at command. In former remarks I maintained thorough drainage would be the means of bringing many crops into use much earlier in the season than in an ill-drained soil; I would now add that it is advisable to lay in a few extra drains if the soil is at all heavy.

All soils do not require the same amount of drainage, but whether the soil be of a clayey or a sandy nature it requires drainage to a greater or less degree. In the hot and dry seasons of 1868 and 1870 great difficulty was experienced in many parts of the country in obtaining water sufficient to keep many plants alive, and in Staffordshire, where I was situated at that time, a horse and man were employed in drawing water in barrels a distance of a mile and a half. Although a hard winter succeeded the latter date we obtained a good supply of vegetables the following winter and spring, and the next summer fruits of most kinds were fairly abundant.

In well-drained ground, if we have a dry period, plants and trees appear distressed, but rain soon creates a change; whereas if the drains are out of order and there is continual rain for weeks the surface soil cannot be worked and the soil becomes sodden, the roots are not in a fitting condition either to obtain nutriment to perfect fruit or to mature fruit buds for another year. In

another issue of the Journal I intend to say something about the general cultivation of the soil.—ROBERT D. LONG.



KITCHEN GARDEN.

Winter and Spring Vegetables.—Fill whatever ground is now vacant with that valuable little hardy Cabbage Rosette Colewort, 12 to 15 inches distance apart being quite sufficient, and such vegetables as Borecoles, which not only afford tops for cutting, but a quantity of side shoots until a late period in spring. Savoys may also still be planted. Complete the planting of Broccoli for spring use, also Cauliflowers for late use, with as little delay as possible, and Cabbages for autumn use; sow Tripoli Onions and Winter Spinach. A supply of Onions when the stock of spring-sown Onions is exhausted is very important, and to secure this good breadths should be sown of such varieties as Queen and Early White Naples, which come in early and are much in request. Sow the seed in drills about 9 inches apart and an inch deep, choosing a sheltered border. The larger varieties of Tripoli, Rocca, and White Lisbon should be given more room, 12 to 15 inches, the seed being sown rather liberally to meet any casualties from the attacks of grubs, &c. If the ground is light it should be rendered firm before and after sowing, and when the plants appear dress the soil with soot or wood ashes to prevent the attack of grubs, and thin the plants when large enough to about 3 inches apart. Winter Spinach should have ample room for the development of the growths—15 to 18 inches is not too much space between the rows, plying the hoe freely between the rows after the plants appear, and do not allow them to remain too long without thinning.

Lettuce and Endive.—Sow seed of Black-seeded Brown Cos, Bath Cos Sugarloaf, All the Year Round, and Stanstead Park Cabbage Lettuces, also Batavian and Curled Endive for the winter supply, the plants being lifted in autumn and planted in frames. The plants should be thinned to about 9 inches apart, and the ground frequently stirred about them to encourage growth. Tie-up the Cos varieties of Lettuces as they become fit for use to secure well-blanching hearts, watering advancing crops liberally in dry weather to prevent running to seed and to insure crispness.

Turnips for spring use should be sown in an open situation, Chirk Castle Black Stone and Golden Ball or Orange Jelly are suitable for this sowing. Periodical sowings of Radishes should be continued at fortnightly intervals, and the sowing of winter varieties—viz., Black Spanish, China Rose, and Californian Mammoth, must not be further delayed. Take advantage of suitable weather for earthing-up early planted Celery, and supply later crops liberally with water or liquid manure. When the weather is suitable take up the early Potatoes, allowing them to lie on the ground for a few hours to become thoroughly dried, then store away for use. The second early varieties should also be lifted as soon as the skins are set. If there be traces of disease on the foliage the necessity for lifting is absolute, as nothing short of this will arrest its progress. Infested plants should be lifted immediately they are noticed, clearing away and burning the haulm.

FRUIT HOUSES.

Vines.—Vines in pots intended for early forcing should be in the last stage of ripening, but if in consequence of the recent dull weather any are not maturing freely fire heat should be employed, and that with abundance of air will soon ripen them. Any that are mature will rest sooner if removed to a south wall, the canes being secured to the wall to prevent injury by wind; but measures should be at hand to protect the roots from heavy rains, as a wet condition would prove injurious, and overdryness must also be avoided. All lateral growths should be checked by pinching, the old foliage being allowed to fall naturally. Early Vines should have a dry warm atmosphere secured to them by day with abundant ventilation, especially at night, the object being to have the wood thoroughly ripe. If the wood is fully

ripe all laterals may be cut away, and some of the longest shoots be shortened back, but the final pruning must be deferred until the leaves are for the most part down. The present is a good time to renovate the borders of early houses; and where the roots are in both inside and outside borders one of them may be taken out and fresh compost supplied without fear of losing next season's crop, providing the work be quickly and carefully done, the house kept close and shaded if necessary until the roots have commenced growth. If not considered necessary to entirely renew the border the old surface soil should be removed and good loam applied, mixing with it a little charcoal or wood ashes and some half-inch bones. Young Vines planted this season should be encouraged with moisture and heat and a free extension of the laterals, as the main object the first season is to secure vigorous root-formation and a few ripened eyes at the base of the canes for cutting back to. Be careful as yet in the treatment of late varieties, such as Lady Downe's, Alicantes, and Muscats, as the change from dull weather to bright sun in a few hours may do serious injury, maintaining a temperature of 70° at night, and ventilating freely in the daytime. Hasten by every possible means any Grapes now in a later stage than colouring; but with the Grapes well advanced give an abundance of air in the early part of the day, closing sufficiently early in the afternoon to allow an advance to 90°, and before night ventilate, allowing it to remain all night. For heavy crops swelling off, supply abundance of liquid manure at a temperature of 80° to 90° to the internal borders, and keep the atmosphere well charged with ammonia by damping all surfaces, where it can be done without spotting the Grapes, every evening with guano water, 1 oz. of guano to a gallon of water. Vines with crops colouring and finishing off must be freely ventilated, admitting air at night, employing fire heat when necessary, as a warm dry atmosphere is indispensable to perfect finish in Grapes.

Peaches and Nectarines.—Trees that have been forced early for a number of years acquire a tendency to premature development, notable in this respect are Early York and other early varieties. This can only be lessened by allowing a moderate extension of the laterals, and the exposing the trees to the external air by the removal of the roof lights, or it may be arrested by the maintenance of a dry atmosphere and a somewhat dry condition at the roots; but this tends to premature ripening of the foliage, which is as bad if not worse than the loss of a few buds. With the trees fully exposed the foliage will ripen off freely, and where the roof lights are not moveable admit air to the fullest extent, maintaining a good moisture in the internal borders, and damping the house occasionally in hot weather. Some of the foliage of the trees in the earliest forced house will now or shortly begin to drop off, but do not accelerate this by brushing over the trees, only remove such as are ripened, for the purpose of destroying any insects they may harbour. Trees showing indications of weakness should have the roots bared and the soil removed, supplying some rich rather strong loam, with a small proportion of half-inch bones and wood ashes, which should be made firm, following with a good watering. Damping the trees occasionally will facilitate speedy root-action; and in case of lifting the roots, as may be necessary if they are deep, and laying them in fresh soil nearer the surface, shade from the bright sun will be necessary, with a rather close and moist condition of the house. It is as yet too early to plant fruit trees, yet all trees for Peach houses should be removed thereto before the leaves have fallen, indeed as soon as the wood is in a condition to admit of it without danger of shrivelling. It is not, however, too soon to select the trees for planting, having them marked at the nurseries for removal when in a suitable condition. Some of the best and most reliable are Hale's Early, A. Bec, and Royal George in Peaches, with Lord Napier and Elrue Nectarines for early forcing; and for successional houses, in addition to those named, are Early Grosse Mignonne, Stirling Castle, Grosse Mignonne, Noblesse, Bellegarde, Barrington, Prince of Wales, and Walburton Admirable in Peaches; and of Nectarines, Murrey, Rivers' Orange, Violette Hâtive, Stanwick Elrue, and Albert Victor. To help trees in succession houses to ripen the wood they should be looked over after the fruit is gathered, and the shoots where too crowded well thinned out, as well as the shoots that have borne fruit this season and are not required for extension.

PLANT HOUSES.

Camellias.—The general stock will now be setting their flower buds, and any requiring repotting should be attended to in this respect before the buds are too much advanced. As to soil, good sandy loam full of fibre is the best, and where this cannot be obtained moderately fibrous peat may be employed, but on no account employ old loam or peat, as either long stacked will have the fibre decomposed. Do not break it up too fine, add sand to the extent of about a sixth, employing the potting stick so as to make the soil as firm as the old ball, merely removing the crocks and the soil not occupied by roots. Camellias do not require so much root room as most plants.

Primulas.—Plants from seed sown in spring should receive their final shift without delay, pots 7 or 8 inches in diameter being sufficiently large, whilst good plants may be grown in 6-inch pots. A compost of good fibrous loam four parts, decayed manure, leaf soil, and sand each a part, thoroughly incorporated, will suit them well. They should be placed in a house, pit, or frame close to the glass, ventilating freely, and shading in sunny weather.

Cinerarias.—The earliest plants intended for large specimens may now be shifted into 8 or 9-inch pots, but for general decorative purposes those in 6-inch pots are the most useful. Turfy loam, with a fifth of thoroughly decayed manure and a sprinkling of sand, will suit them. They should be placed on ashes in a well-ventilated pit or frame, being shaded from bright sun. Cleanliness from aphides is of primary importance in Cineraria culture, therefore dip the plants in tobacco water, or fumigate moderately upon their first appearance.

Cyclamen.—The plants will now be freely rooting, and should be shifted into larger pots where necessary, merely removing the crocks and any soil not occupied with roots. Any plants that do not require shifting should have the drainage rectified, the surface soil being removed and fresh compost supplied. Good fibrous loam with a fifth in equal proportions of decayed manure and leaf soil, with a sixth of sand, will suit them well. They should be kept in a pit or frame with moderate ventilation. Young plants should be shifted into larger pots, and growth encouraged by keeping them rather close.

FLOWER GARDEN.

The almost incessant rains during the past month have been very unfavourable to the production of bloom, but Violas and Verbenas have succeeded well. Pelargoniums have plenty of foliage but few flowers. This tendency to over-luxuriance may be lessened by removing the old leaves so as to allow the air and light to solidify the growth. Although unfavourable for the flowering varieties of Pelargoniums those grown for the beauty of their foliage were never perhaps finer, the moist atmosphere and subdued sunshine suiting them admirably. Flower gardens are now expected to be at their best. Every care should be taken to have them in good order. Rough edges of lawns must be trimmed, and the grass frequently mown, keeping all as trim as possible. Tie and support the various border flowers as they advance in growth, removing dead flowers and seed vessels. Pippings of Pinks may still be inserted, and any that are rooted may be planted out. Carnations and Picotees if not yet layered should be attended to, and sow the seed as soon as ripe in pans. Roses are now nearly over; the straggling shoots should be cut in, and every encouragement given the plants to make young wood for autumn blooming.

Propagating Bedding Plants.—Cuttings of the choice varieties of Pelargoniums—tricolor, bronze, and variegated—should at once be inserted, as if deferred until late in the season failure is inevitable. They should be inserted round the sides of pots placed on ashes in a frame in the full sun, the lights only being employed to afford shelter from heavy rain. After they have been attended to the Zonals should be commenced, for though it may be disagreeable to cut the plants directly they begin to look well, yet it is advisable to start betimes so as to have well-rooted sturdy plants before winter. Verbenas, Petunias, Ageratums, &c., strike freely in a cold frame kept close and shaded from bright sun, the plants so raised being hardier and winter better than those struck later on in heat. If stock plants of Iresines, Coleuses, Alternantheras, &c., were not kept for propagating, cuttings should at once be obtained.

TRADE CATALOGUES RECEIVED.

Wm. Cutbush & Sons, Highgate, London.—*Catalogues of Store and Greenhouse Plants and Bulbs.*

Wm. Paul & Son, Waltham Cross.—*Catalogue of Bulbs.*

John Laing & Co., Forest Hill, London.—*Catalogue of Bulbs.*

Damman & Co., Leipzig.—*General Catalogue of Plants.*

George Rudd, Undercliffe, Bradford, Yorkshire.—*Catalogue of Auriculas, Carnations, and Picotees.*



* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Culture of Tea Roses (*Reader*).—You will gain all the information you require from Nos. 995, 998, and 1002 of this Journal.

Twin Cucumbers (*B. C.*).—We have had many specimens sent to us similar to the one to which you allude; indeed twin fruits appear to be plentiful this year.

Caterpillar on Clematis (*Rus in Urbe*).—This is the caterpillar of the Buff Ermine Moth (*Arctia lubricipeda*), which feeds on a variety of plants in gardens. There is no remedy but hand-picking.

Clematis Injured (*Idem*).—We are unable to account satisfactorily for the withering of the buds and tips of the shoots. We have seen them injured by the wind, and also shrivel when the soil has been too dry for affording the support necessary for continuing free and unchecked growth. The soil may be moist enough on the surface, but is it moist below?

Manure for Mushroom-growing (*I. W. C.*).—There is no practical difference between the droppings of horses and mares at the time the droppings are collected for making up Mushroom beds. We have employed both for many years with satisfactory results.

St. Ignatius Bean (*T. Derby*).—This is the seed of *Ignatia amara*, a plant that is allied to the *Strychnos nux vomica* of commerce. The fruit is about the size of a Pear, and is covered with a thick rind. The so-called "beans" contain a large quantity of the alkaloid strychnia, which has been employed in medicine.

Various (*Flora*).—The "Green Rose" you could possibly obtain from any of the chief nurserymen. *Schinus Molle* requires a stove temperature in this country to grow it successfully. There are botanic gardens both at Frankfurt and Hamburgh.

Jasminum officinale (*S. C. O.*).—Possibly this is the "common white Jessamine" to which you allude; if so, it may be allowed to grow freely during summer, and in autumn prune in the straggling shoots. It may be propagated either by cuttings or layers.

Cucumbers not Swelling (*Half-pay*).—The most likely cause of the fruit turning yellow at the neck, being crooked and bad generally, is the recent dull wet weather, and could only be remedied by gentle fire heat so as to admit of a circulation of warm air. The most reliable variety for market purposes is Telegraph; Paragon also is very good.

Mealy Bug on Stove and Greenhouse Plants (*A Victim to Bug*).—A solution of nicotine soap, 6 ozs. to a gallon of water will destroy mealy bug; the plants if small being dipped, or if large laid on their sides and syringed, turning them so as to thoroughly wet every part. The solution should be applied at a temperature of 100° to 120°.

Grapes Shank (*J. K. Boyd*).—Removing large quantities of foliage at one time is almost certain to produce shanking or scalding, but generally the former, and is not favourable to the perfect finish of the Grapes, not infrequently resulting in deficiency of colour in black varieties.

Men Required in Garden (*Subscriber*).—Much depends upon the extent of glass and the flower garden, but as a rule a man to every acre of ground is considered sufficient, the glass being in proportion to the extent of ground as usually prevails in private establishments. Had you given more particulars our reply would have been more explicit.

Rose Foliage Eaten (*Horace*).—The leaves have been eaten and perforated by some caterpillar. Syringe the trees with tobacco water—viz., a gallon of tobacco juice diluted with 6 gallons of water, adding 2 ozs. of soft soap to each gallon of the liquid. Apply it during a calm evening.

Greenhouse Plant not Flowering (*A Subscriber*).—The few leaves you sent appear to be those of some Myrtaceous plant, but without flowers it is impossible to determine the species. The excessive luxuriance you mention is probably the cause of its not flowering. Turn the plant out of the pot, and repot it in a compost of peat, loam, and sand without any manure. Place it in a position where it will be fully exposed to the sun, so that the growth may be matured.

Liming Vine Borders (*Beauchamp Stannus*).—Having given your Vine borders a dressing of lime in spring, more will not be needed for two or three years, unless a small quantity was applied, when a similar quantity may be given

annually. Lime acts as a decomposer of animal and vegetable matter. It also affords calcareous matter, so essential to some kinds of Grapes, particularly Frontignan.

Vines for Early Forcing (*T. Andrews*).—Of the Vines you name Buckland Sweetwater and Mill Hill Hamburgh are the only suitable varieties. Frankenthal can be forced, but does not always colour well, and Muscat Hamburgh sets so badly that it cannot be satisfactory. Similar remarks apply to Golden Queen, which with Madresfield Court are capital midseason Grapes and good for starting in early spring. Gros Colman and Alicante are excellent late Grapes. Add to the first two named Black Hamburgh, Foster's Seedling, and White Frontignan—all suitable for early forcing.

Vine Leaves Scorched (*F. I.*).—The removal of the foliage in quantity would have a tendency to induce scorching, and ought not to have been necessary had pinching been resorted to at the proper time. Never allow more foliage to be retained than there is sufficient space for, as when the leaves are crowded they cannot properly perform their functions, and their removal may, after a dull period, result in the remaining leaves being scorched.

Tomato Leaves Curled (*J. Bartlett*).—The variety is either too heavily cropped, or is less robust in character than the other that remains in a healthy state. There are traces of mildew on the foliage, and on one leaf some discoloration that conveys a suspicion that the plant is attacked with the disease similar to that affecting Potatoes. If the brown patches increase in size and number you had better cut off all the affected growths, or even destroy the plants, with the object of preserving the others that yet remain in a healthy state. We have seen thousands of plants quite ruined with the "disease." Yours, however, judging by the leaves sent, appear to be only slightly affected with the malady and may possibly recover.

Tomatoes not Fruiting (*H. T. H.*).—Many besides yourself find the "early blooms barren" on plants grown in pots under glass, and several good cultivators remove the first flowers and seldom fail to obtain a full crop, the flowers subsequently produced generally setting well. It is an excellent plan to retain only one stem to each plant, and with sufficient light for the foliage and otherwise good management heavy crops are produced. Your letter shall have our attention.

Pruning Chimonanthus fragrans (*M. P.*).—Cut back all excessively long or irregular shoots after the shrub has flowered, and train-in the branches to the wall. During the spring and summer any coarse growths can also be removed. This shrub, although of easy culture, does not usually flower very profusely unless it is in a warm border and trained to a wall with a south or south-west aspect. When too luxuriant lifting and replanting is an efficacious mode of checking it, and inducing the production of flowers.

Melon Stems Cankering (*Gardener*).—The canker at the stem and roots is caused by a superabundant supply of moisture after the stem has been for a time dry, and not unfrequently is caused by the stem being covered with leaves; or drip from the lights will cause it. Remove the leaves which cover the stem, and keep a clear space of about 6 inches from the stem all round, and if any canker appear rub it dry with quicklime, and dust it over with it after the operation. Examine the plants frequently, say two or three times a week, and if any canker continue apply fresh lime, dusting again as before, and the best results may follow.

Culture of Indigofera decora (*M. D.*).—It is of free growth, and requires the wood well ripened to ensure profuse flowering. Prune in February or March, when the plants are beginning to grow, cutting them in rather closely, or in case of old plants spur the shoots into two or three eyes of their base. Young plants will of course need to have the shoots left longer for the formation of the specimen, and being in a cool airy part of the house they will break naturally and strongly. When the young shoots are an inch long turn the plants, remove most of the old soil, and pot in the same size of pot or a little larger, and place in a close pit, shading from bright sun until the plants have recovered, then expose them to light and air, syringing with water morning and evening up to flowering to keep down red spider. When the roots are slightly matted shift into a pot 2 to 4 inches larger in diameter, providing good drainage. Water abundantly when growing and flowering, afterwards expose the plant fully to light and air, and in winter keep it dry, not, however, so as to cause the wood to shrivel or leaves to fall prematurely. Equal parts of sandy peat and fibrous loam, a quarter part of leaf soil or old dry cow dung, a sixth of silver sand, with a like quantity of pieces of charcoal form a suitable compost.

Vegetation North and South (*Rev. C. S.*).—The average summer temperature is almost invariably some degrees lower in the district to which you refer than in the south of England, and the crops are correspondingly later. We know a gentleman who remains in the south until the small fruit crops—Strawberries, Currants, Raspberries, and Gooseberries are over, and then goes to his residence in Morayshire and finds them just commencing ripening. This has been his practice for thirty years, and he has never, when the crops were good, been disappointed of his second period of fruit. Nearly all the hay is gathered in the south, and grain-cutting has commenced, but with you the corn is not nearly ripe. The difference generally holds good throughout the season, but occasionally the autumn is brighter and drier in some districts of Scotland than in the south of England, which is fortunate for you, or some crops in the north could not ripen at all.

Roses Exuberant (*Irish Subscriber*).—Thin-out the growths if crowded, retaining those that are short-jointed, removing those that are very sappy on the one hand and weak on the other. By thus admitting light and air to the foliage you will aid in maturing the growth. As you reside in a moist climate you may possibly with advantage remove the tips of those shoots that are 4 feet high, but the growths usually become firm without being stopped when they are thinly disposed. If you do not prune the plants too closely in the winter you will probably have fine blooms next year, but close pruning will result in further strong and perhaps flowerless growths.

Late Strawberries (*W. B. E.*).—Elton, Eleanor, Frogmore Late Pine, and Loxford Hall Seedling are amongst the most useful late varieties. Dr. Hogg is often late when grown in a cool position, and is of better flavour than the others. It is not safe to grow only one late Strawberry, as the varieties do not succeed equally well in all districts. Try those named, and select the one most suitable for your soil and situation. They can be had from growers who advertise in our columns. We never recommend dealers.

Roses for Chalk Soil (*M. B. D.*).—By trenching the soil and making it good with the addition of manure to a depth of 2 feet, and covering the surface thickly with manure, all free-growing Roses will succeed in your garden. As you do not state the number of varieties you require we cannot usefully make a selection for you, but if you state the number you want to a good Rose nurseryman, stating also the nature of the soil, he will send you suitable varieties. If

the soil is very strong the Briar would be the most suitable stock, and many varieties would also do well on their own roots. We are quite ready to name some good varieties for you if you will let us know how many you require.

White Foxglove (*Risley Hall*).—The flowers had all fallen from the branch and were much withered. It appears sufficiently distinct to be preserved with the object of ascertaining if the change of form is merely accidental or not. You might also save seed from the large bell-shaped flowers, and possibly you may obtain a distinct and pretty variety.

Agave densiflora (*C. M.*).—It is impossible to advise you as to the treatment of the plant without seeing it. The most satisfactory course would be to take the opinion of a practical gardener in the neighbourhood. The fact of the Orange pips producing "apparently wild trees with thorns" indicates the tendency evidenced by all cultivated plants to return to their original form.

Vines Unhealthy (*J. T. S.*).—You have misunderstood us. We did not say the scorching of the foliage was caused by syringing too early in the afternoon, but endeavoured to inform you that it was caused by the house being too moist in the morning before the ventilators were opened. Your Vines are undoubtedly scorched, and are more liable to injury on account of their unhealthy state. The leaves, instead of being stout and leathery, are thin and flimsy, quite destitute of tissue, and this has not been caused by insects, but is the result of some fault in management or unsuitable soil. There are no insects nor eggs nor larvae of insects in the excrescences of the leaf sent, which we have carefully examined with the aid of a powerful microscope. The Melon leaves were beyond question infested with red spider. There may, of course, be some other insects on the plants, but there were none on the leaves sent. There are no so-called "Vine bugs" on the leaf we have examined but only warts, with traces of red spider and mildew—the latter being consequent on the ruptured tissue. It is not common for red spider to "eat holes" in the leaves, but when the insects are so numerous as they were on the Melon leaves sent, they so extract the juices that a shrinkage of the foliage often follows, and occasionally the leaves appear as if roughly perforated. The same effects follow when the young leaves are much attacked, and afterwards increase in size. Neither does the Vine coccus eat holes in the leaves. Whether there are other insects or not on your Vines besides the red spider you cannot err by sponging the foliage as you propose with a mixture of soft soap and hellebore. It is our duty to inform you that you are quite in error in describing the warts on the leaf before us as "nothing more nor less than the bug or coccus in their larvæ state." We cannot tell what you have on leaves that we have not seen; but this we know, that your Vines have been mismanaged and your Melons devoured with red spider. You had better sponge the leaves now and give the Vines and house a thorough cleansing in the winter.

Various (*E.*).—If you have employed light open nets, old herring nets, for the trees, they are not the cause of the foliage falling. The trees are probably weak as well as old, and in that state the foliage is very liable to the attacks of red spider, which does little harm to young and vigorously growing bushes. The tendency of early defoliation is to restrict root-action, which renders the trees still weaker, and the fruit smaller each year. Keep your old trees till the others are in a bearing state, then destroy the former, having still younger plants coming on to maintain the supply. All the trees you name may be safely removed if they are taken up with great care, planted well, and staked securely. Evergreen Oaks, however, do not transplant well, and special attention must be given them both during their removal and afterwards. If biennials are grown in specially prepared beds, each kind having a bed to itself, they may be planted in early autumn; but if they are required to bloom in mixed borders they are preferably planted in spring, just when fresh growth is commencing. Fruit is generally small this year, the weather not having been favourable for its free development. A greenhouse with a north aspect is suitable for *Ferns*, *Selaginellas*, fine-foliaged *Begonias*, and even *Fuchsias* in the summer; also for *Camellias* and many other plants.

Boxes for Exhibiting Cut Flowers (*San Juan*).—There is no work published on this subject. The boxes described in the book you name will, as to size and distances of the tubes, answer equally well for *Pelargoniums*, and *Pansies* may be shown in boxes that are used for *Carnations*, the dimensions of which are given as follows by the National Carnation and Picotee Society:—For twelve blooms there should be three rows of four each, from centre to centre $3\frac{1}{2}$ inches; from centre to outside, $2\frac{1}{4}$ inches; outside length, $15\frac{3}{4}$ inches; width, 12 inches; depth, $4\frac{3}{4}$ inches; to be painted a bright green. The collections of sixes should be in three rows of two each, with the flowers at the same distance from centre to centre, and centre to outside, as in the collections of twelves. The collections of twenty-fours may be composed of two boxes of twelves, making three rows of eight in each row, or in one box, as may be convenient to the exhibitor, but the same space should exist between the flowers. The same boxes will also do for French *Marigolds*. *Asters* and *African Marigolds* may be shown in the *Rose* boxes, or boxes of the same size, for they are not shown on moss the same as *Roses* are. *Carnations*, *Picotees*, *Pansies*, and *Asters* are usually shown on white paper collars.

Ornamental Fence (*Suburban*).—Peeled oak cord-wood makes a first-class rustic fence, and its peculiar forms may be arranged to suit almost all tastes. An examination of a rustic chair will suggest something of the appearance of Oak cord-wood made into a fence; but you can have it placed to suit your own fancy, for rustic work is ornamental in proportion to its rudeness. A fence of this kind covered with *Ayrshire Roses* is one of the finest objects in a garden. The branches of the English *Maple* (*Acer campestre*), are the best of all wood to form a rustic ornamental fence; but they can rarely be had. The binnings of *Larch* plantations are most used, and may be made to assume a variety of forms, the commonest of all being upright posts driven into the ground close enough to keep sheep out, with a half pole on top for capping. This is commonly known as the *Scotch fence*. Any joiner would suggest to you several shapes and put them together in squares, triangles, or diamonds to suit your taste.

Names of Fruits (*G. P., Hants*).—The Pear was much decayed, but appears to be *Citron des Carmes*.

Names of Plants (*Sal*).—The plant resembles a stunted form of *Francoa appendiculata*. (*G. P.*).—The *Rose* was too much withered to be recognisable. The yellow flower is *Tanacetum vulgare*, the other is *Rhus Cotinus*. (*F. T.*).—1, *Anemone coronaria*; 2, *Leycesteria formosa*; 3, Completely withered. (*G. J. S.*).—The plant to which you refer is *Tritoma Uvaria*. (*W. R.*).—Your specimens when submitted to us were too withered to be identified. (*J. T., Stoke*).—1, *Spiraea Menziesii*; 2, Too withered to be recognisable; 3, *Astrantia major*; 4, *Habrothamnus elegans*; 5, *Veratrum nigrum*; 6, *Funkia ovata*. (*Cuckfield*).—*Achillea Ptarmica flore pleno*. (*M. Roper*).—The small fronds of the *Ferns* we received were quite without spores, so their names could not be determined with certainty.



POULTRY, PIGEON, AND BEE CHRONICLE.

ROTATION OF CROPPING FOR HEAVY OR MIXED LOAMY SOILS.

WE are aware that we have undertaken a difficult task in endeavouring to indicate the best rotations of cropping for heavy or mixed loamy soils, but our experience of the systems of cropping adopted upon various loamy soils has been so extensive that our remarks may be the means of inducing the home farmer to consider the subject attentively. One of the chief difficulties we shall have to contend with will be difference of soil, situation, and aspect. The soils, and the variations from flat to hilly land, even where the soil is similar, will be sure to influence the cropping; we shall therefore endeavour in the various divisions of soils to name them, in order that each may the more readily be treated by different modes of cropping. In carrying out our intentions we shall, however, be obliged to allude incidentally to the system of stocking as well as cropping, for it is important that wherever stock is kept it should be shown practically how it is made suitable to both soil and climate.

We will first consider the treatment of clay soils. These vary much in consequence of the difference of the subsoil, yet there is a similarity among them which either excludes sheep from the land, or at any rate from consuming roots upon the land in the winter months. Still on many farms, especially those situated upon a chalk subsoil, sheep are kept in large numbers. Let us first discuss a rotation of cropping for such soils, including a provision for sheep feeding off green crops during the summer months; and we must here remark that the present time is the best, not only for setting out the rotation, but also for altering any mode upon which a farm may have been previously conducted. We will illustrate our advised system by the cropping of a farm of 200 acres of arable land. First year a preparation by autumn fallow, sown with Rye, Trifolium, and winter Vetches in autumn, and Mangold in the spring, extending over 20 acres, in such proportions as the requirements of the stock may dictate. As we are advocating what may be called a five-course rotation, each division will contain 40 acres, thus there are 20 acres more to crop in this division. This should be sown equally with Beans and Peas, which may be succeeded by Wheat following a fallow made after the Rye, Trifolium, and Vetches have been fed off by sheep. The Mangolds should be pulled for food at the homestead, or for feeding sheep in the following spring upon the land. As soon as the Beans and Peas have been harvested the land should be scarified and autumn-fallowed, and the whole 40 acres under preparation for Wheat must be manured at a convenient opportunity. If the season is unfavourable for the dung being laid out artificial manures may be applied—a portion at seed time, and the remainder in the spring. The land where the sheep have been folded on the green crops will, with the autumn fallow succeeding, be well prepared for Wheat without any manure until the spring, when, if requisite, it may be dressed with nitrate of soda. We have thus accounted for two years out of the five by green crops, roots, fallow, and pulse crops in the first year, and Wheat in the second year. The third course should be Lent corn, either Oats or Barley, or both in admixture, called drege. If for Barley the land should be prepared by steam power, and broken up roughly to lie the winter. In the spring the Red Clover seeds will be sown in the Lent corn upon half the lain

—viz., 20 acres. The other half should be sown with Dutch and Alsike Clovers mixed with Timothy Grass seeds, thus completing the fourth course. In the fifth and last course 20 acres may be retained as old lea, and 20 acres sown with Beans and Peas, the latter being sown on the land which was devoted to green crops and fed off by sheep in the first course. This will complete the cropping on a farm where sheep may be kept in summer time. It will be noticed by the home farmer that there will be various opportunities for short fallows under this system, so essential to the successful culture of heavy land. The crops grown under this rotation will be 20 acres of green crops and roots, 40 acres of Beans and Peas, 40 acres of Wheat, 40 acres of Clover and grass, 40 acres of Lent corn, and 20 acres of old lea.

We will next consider a rotation of crops adapted for the strongest land where few if any sheep are kept, and the root and green crops are employed for feeding fattening cattle or sheep in covered yards, or for dairy or store cattle, all roots and green crops being removed from the land. We propose, as before, to take an arable farm of 200 acres, to be cropped under a four-course; steam power, however, being a great necessity in the cultivation. The first course will be prepared by an autumn fallow, and as we have 50 acres to crop in this division 15 acres may be sown with Rye, Trifolium, and Vetches, 15 acres with Mangolds, 15 with Swedes, and 5 acres with early common Turnips. All these crops should be prepared for by autumn cultivation, the green crop seeds being sown in the autumn. The land for root crops must be deeply ploughed to lie during the winter, but in the early spring no ploughing should be required for roots. Sow early, in order to secure the heaviest crops of roots and an early autumn clearance, as all will require to be removed and stored either by a heap in the field or at the homestead for feeding cattle in the winter and spring months. The green crops being removed early will offer no impediment to fallowing the land after, and laying out the manure for Wheat; the land for roots will have been spring-cultivated, and hand-picked to remove grass and weeds, being also horse and hand-hoed in due season, grass and weeds again being forked out, or the land scarified after the removal of the crops. The whole of the root land will then be manured and ploughed for Wheat, or in case of adverse weather the carting of manure may be dispensed with, and artificial manures used instead; after the Wheat has been drilled, and for such land it should be drilled at 12 inches between the lines, giving an opportunity for effectual horse-hoeing in the spring, for in some seasons unless this is done the crop will be greatly depreciated. Thus the first course for fallow crops will have been completed, and also the second course sown with Wheat, each being 50 acres. The third course of 50 acres may be appropriated as follows:—15 acres being sown with Wheat and broad Clover, 15 acres with Dutch and Alsike Clover mixed with Timothy Grass; and 20 acres with Beans and Peas, either together or separately, or the Beans may be mixed with winter Vetches. This completes the third course, which may be in the fourth course followed by Lent corn, or Wheat in part; for 25 acres of this land may, when the season is favourable, be sown with either out of lea, and the remaining 25 acres with Oats or drege in the spring, or in favourable seasons a part may be sown with winter Oats.

In this four-course cropping we provide of green and root crops, 50 acres; of Wheat, 50 acres; of Clover and grass crops and pulse, 50 acres; of Lent corn and Wheat, 50 acres. In practically criticising this rotation of cropping it may be said that the cost of tillage will be too great for any advantageous results; but it should be borne in mind that the heaviest labour is not only done more effectively by steam power than it could be done by animal power, but that the practice sets the horses free to do a large portion of the work which could not be done by steam. One great feature in the rotation will be found in the fallowing, which may be as effectively carried out for all useful and reproductive purposes as the old-fashioned long winter and summer fallow, whereon must be charged rent, tithes, and rates, the labour bill of horses and men for a year, without anything to compensate. The four-course rotation we advise will not only carry out successfully all the objects for which fallowing may be said to be necessary, but that it, under intelligent management, provides an enormous amount of vegetable and green food for cattle, horses, and sheep. This must be considered an important point in the management of the home farm, especially at any period when corn and pulse is selling at a low price. We have now to give the old-fashioned rotation to enable the home farmer to take notice of by comparison with those we have named. It is first year a long fallow, manured; second year, Wheat; third year, Oats or drege; fourth year, Clover and part Beans or Peas. The principal points to be observed in this rotation is an almost entire absence of food adapted for the feeding

of stock, and consequently the loss of profits thereon, with but little manure made to renew the fertility of the land.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—We will suppose that in accordance with our recommendations both the horses and all implements required for harvest work are waiting only the word of command to commence operations. It then becomes a question of how far the home farmer is provided with the machinery necessary for cutting and tying the crops of corn, &c. There is a difference of opinion amongst farmers in some districts as to the carting of Lent corn, such as Barley and Oats, in a loose state or tied into sheaves. Our opinion is that it is best to tie and set up every kind of cereal in shocks, particularly where the reaping and binding machine is employed; because if the corn is quite dry when tied into sheaf, and the shocks are kept properly set up, all the straw and grain cannot be injured even in the most adverse weather. The only disadvantage we have experienced in the practice has been where the Clover and grass seeds were sown in the corn, as if the shocks stand for any lengthened period the young plants will be destroyed. It may be thought that these might be removed on a fine day, but on the return of heavy rains the sheaves removed will suffer seriously, because the portions of the sheaf hitherto sheltered will become exposed. In very high winds, which usually accompany a wet and stormy season, when the shocks are blown down they may be set up again upon fresh ground, but in round shocks to avoid the effects of the wind. The advantage of tying Lent corn is found chiefly in the diminished labour and time required both of horses and men at carting time. We have also found that when sheaved either Barley or Oats may be made into round instead of oblong ricks. We much prefer the former plan, because the butts of the sheaves face the outside, receiving less damage from winter weather, and a round rick needs less thatching and is not so likely to be stripped by high winds.

Hand Labour.—Although in the early districts harvesting has commenced, yet the home farmer should remember that labour will be required in hoeing the young Turnips and in the second hoeing of earlier root crops. This matter cannot be neglected with safety, therefore some men must be employed in the hoeing of roots and similar work during the harvest month. Where labourers are scarce it is a practice to turn most of the horses out to grass during the early part of the harvest before the carting of corn commences, in order that the teammen and boys may be available for harvest work. We object to this plan, because the few days or a week's work for the horses is lost at a time when we have found the labour of the horses of far more consequence than that of the men. The home farmer must now consider that the harvest work is most important, but the sheep and cattle should on no account be neglected. The lambs recently purchased on the grazing farms and stock lambs on the hill farms should be shorn about the middle of this month. The ewes, too, can be leared or dipped to prevent the fly striking. In a season like the present dairy cows require little food besides their pasturage; if, however, the grass should run short the second cutting of Clover becomes valuable for them, instead of risking making it into hay. In harvest time the work of cutting Clover for horses or cattle should be done by a man appointed for the purpose, and employ the odd horse for carting it to farmstead, instead of the teammen being taken for the purpose. The women, where they are encouraged to work, are capable of doing much light work besides that of the harvest field, except where a man and his family undertake the work of cutting corn and pulse by the acre. The method of running pigs over the stubbles after harvest is nearly abolished or fallen into disuse, because under ordinary management the horse-rake leaves little food for pigs, and we often find the difficulty of keeping pigs in the fields intended for them.

METHOD OF TESTING MILK.

THE lactometer, a short tube of large dimensions, weighted at its lower end, and carrying above a slender graduated stem, is the simplest instrument for testing milk, and is far more generally used than any other instrument in Europe as well as in this country. When the milk to be tested is known to be unskimmed, and the temperature of the liquid at the time the test is made is 60° Fahr., the indications obtained by this method are sufficiently reliable for ordinary purposes. The lactometer used by the New York Board of Health is graduated from 20° up to 120°; the 100° corresponds to a specific gravity or density of 1.029, which is taken as the lowest allowable limit for pure unwatered and unskimmed milk; the 114° corresponding to the specific gravity of 1.033, is taken as the highest allowable limit for pure whole milk; the test is made in all cases at 60° Fahr. These limits correspond with those generally adopted elsewhere. There are undoubted cases, however, in which the density of the milk of a single cow has been found to be less than 1.029 at 60°, and it is safe to use this standard of purity only in the case of the mixed milk of several cows, at least three or four, as usually received at a factory; and even then it would be prudent not to take action against a

suspected patron, unless the lactometer indicated a few degrees below 100. It is, we believe, the practice of the New York Board of Health to proceed against a dealer only when his milk indicates 90°.

The skimming of milk cannot be detected by the lactometer; in fact, as is generally known, skimmed milk can be watered so that it will have the density of good unskimmed milk. Any experienced dairyman can tell by the appearance of suspected milk whether it has been much skimmed or not. For the detection of a moderate removal of cream the cream-gauge is a very unsatisfactory test, upon which very little real dependance can be placed. Many methods have been proposed for the approximately accurate determination of fat in milk, which shall not require too much time and manipulation, but nearly all of them have failed to answer the purpose. Marchand's lactobutyrometrical test, a full account of which is given in the report of the Cornell University Experiment Station for 1879-80, has most successfully stood the test of time, although it is not yet all that could be desired. It requires but little apparatus, and the manipulation is easy and short. Such a description of the method as would be of any practical use to our inquiring friend would take up so much of our space, that we must refer him to the report, which, as has been already stated, can be had on application to Professor G. C. Caldwell, Ithaca, N.Y.—(*New York Tribune*.)

PRESERVING EGGS.

THE provident housewife should now be busied with preserving the superfluous eggs of summer against winter scarcity. We believe the recipe long ago given by the Hon. Mrs. Arbuthnot, "*the Henwife*," *par excellence* the best. She wrote: "Once a week I clear my baskets, selecting only perfectly formed eggs; the slightest fracture or imperfection in the shell would cause the failure of a whole batch. I place the eggs carefully in a jar and pour over them lime water, which is made by dissolving quicklime in the proportion of two shells to four gallons of water. This must stand a day at least till the residue has settled at the bottom of the vessel. The clearer portion is then poured over the eggs so as to cover them. Should the jar not be full fresh eggs are added from time to time, and as the lime water rises it is poured into another jar ready to be filled in like manner. Be careful that the eggs are at least an inch below the surface of the water; place a plate or lid of wood over them to prevent their floating; tie up the jar and label it, stating the date and number of dozens."

PIGEONS—PARTING THE BIRDS—FLYING.

PIGEON FANCIERS must now be thinking of parting their birds—at least, if they have accommodation for doing so. Pigeons which were mated early will by this time have been occupied long enough with the arduous task of rearing successive families. We believe the season has in general been a good one for Pigeons; we certainly have never reared more or stronger birds—a strange contrast to last year, which we found absolutely disastrous to young Pigeons! It is often difficult to know exactly when to part pairs. The hens generally lay again before their last squeakers can feed themselves, and so we are tempted to go on from nest to nest. If we allow this much longer our birds, specially the hens, will not be well through the moult by the showing season. Either the last-laid pairs of eggs must be transferred to common birds, which are stronger and can be allowed to breed as long as they like, or they must be destroyed. The hens should then at once be removed and placed in a house without cocks and without nesting places.

We are glad to see that the world in general, apart from mere Pigeon fanciers, seems now to take considerable interest in Pigeon flying; at least, we judge so from the constant notices in the daily and weekly papers of interesting flights. *The Graphic* of Saturday last states, "On the 25th July a Pigeon started from London at 6 A.M. and arrived at Cologne exactly at 12, thus 'doing' the distance in twelve hours." It is well that the public should be interested in the subject, for in case of national emergencies homing Pigeons might be of the greatest use, as they were during the siege of Paris.—FANCIER.

VARIETIES.

THE POULTRY CLUB.—We understand that a Committee meeting of this Club is to be held to-morrow (August 13th), at the Charing Cross Hotel, at noon.

— BIRD PRESERVATION.—Lord Dartrey has been calling attention to the general disregard shown in Ireland to the Acts for the

preservation of birds and seawolf. The police are apparently too much occupied with the preservation of human life to think of that of the unfortunate birds.

— DUCLAIR DUCKS.—We learn from a letter to a contemporary that Miss Mary Arnold has been searching in France for Duclair Ducks. We are much interested in any additions to our aquatic domestic birds, and shall be glad to hear the result of the search, still more to see the birds in the exhibition pen.

— WE have received the schedules of the poultry shows to be held at Winslow on September 16th, and at Worcester on September 18th and 20th. The former is that of the Royal and Central Bucks Agricultural Association, which has generally been held at Aylesbury. The classes are much the same as usual, and for birds of any age. The classification of the Worcester Show is on the whole good, though we much regret to see but one class for all varieties of Dorkings. It is confined to chickens of the year.

— HEAVY RAINFALL.—From Leicester we learn that the heavy rainfall of Saturday night and Sunday morning has caused the River Soar to overflow its banks and submerge large tracts of land. At Sileby, Barrow, and Cotes, and the neighbourhood of Loughborough the waters are out to a serious extent; in some instances the roads are 2 feet under water. The meadows near Leicester present a deplorable aspect, sheets of water extending for miles, and in many instances the crops have been destroyed. A considerable quantity of hay in process of making has been washed away.

— WHEAT IN AMERICA.—The *Prairie Farmer* says—"The capacity of this country for the production of Wheat seems to be almost illimitable. Corn does not thrive well at an elevation greater than that of 5000 feet, while Wheat can be raised between 2000 and 3000 feet higher. In the far west there is an area of two hundred million acres of land where Wheat will grow and corn will not. The capacity of the Canadian North-west for Wheat production has been previously adverted to in these columns. It is believed that in this territory alone all the bread needed by the world can be produced. The chief obstacle to this last-mentioned consummation is the distance of that region from the principal markets; but, as mentioned in a previous number, the increase of railway facilities and the already existing system of water communication are on the way to furnish an early solution of the problem."

— FUMIGATION FOR GAPES.—Entomologists always prescribe as a cure for gapes in chickens to remove the worms from their windpipes with a feather or horse hair. The truth is, not one person in a hundred has the requisite skill to perform this nice surgical operation; hence the remedy, though often repeated, is valueless. A much better way is to kill the parasites with tobacco smoke. They then let go their hold on the mucous membrane of the windpipe, which stops the spasms and relieves the chicken at once. They are afterward probably thrown out, or at least never give any further trouble. The remedy is safe and sure. We have never failed in a single instance in this treatment of chickens, although in many instances they were in the last stages, and hardly able to walk. The smoke may be blown into the nostrils through a pipe by enclosing the head in a little bag, or where there are a number of chickens affected they may be put in a basket and covered with a cloth, and then placed over an iron or earthen vessel, in which the tobacco may be burned, the smoke being forced into the basket by a cloth spread around. The chickens should be examined every few seconds, and whenever one becomes stupid it should be taken out and laid on the ground, where it will soon recover.—(*New York Tribune*.)

— MANUFACTURE OF FOREIGN CHEESES.—A few of the continental cheeses have been on a small scale imitated in this country; it is obvious, however, that they will not be extensively produced until the taste of the people has been so educated as to create an equivalent demand for them. Such education is, however, no doubt going on. The Gorgonzola, a famous Italian cheese, in some respects resembling the Stilton, has been very successfully imitated in Leicestershire, and there can be no doubt that, with the exception of the Roquefort, all the more worthy and popular of the continental kinds of cheese can be successfully produced in England. Whether

or not it will be profitable to produce them is a problem whose solution we leave to time. Some of our well-known authorities are advocating the production of soft cheeses in the place of a portion of the hard ones peculiar to this country, and it is to be hoped that an opening for some of the better kinds will be provided. Made for early consumption, the returns will be quicker, and a new element of variety will be introduced into the dairying of these islands.—(*"Dairy Farming,"* by Professor Sheldon.)

— HARVEST PROSPECTS IN THE MIDLANDS.—Great delay has been experienced in gathering in the hay harvest in Warwickshire owing to the wet weather, and in many instances the crops have been so damaged that they will scarcely repay the increased labour expended on them. Wheat has been thrown back considerably by the weather, and at present it is hard to say what kind of yield it will be. Barley is about an average. Oats are better than last year, and promise well. Beans are likewise in better condition, and above the average. The harvest will be a late one. Potatoes are a good yield, but in some instances the disease has appeared, not, however, to a great extent. The root crops are looking well, but plenty of weeds are to be found. A few weeks' fine weather would make a wonderful difference to harvest prospects in this district.

— REARING TURKEYS.—Much of the alleged delicacy of young Turkeys is no doubt owing to the degeneracy of the strain, the produce of an American cross being always found much more hardy. It is, however, quite true that during the earlier weeks, and before the young birds "shoot the red," as it is expressly called, or develop the red earunculated protuberances about the neck and throat, they are peculiarly susceptible to wet, so that even one good wetting will perceptibly thin a large brood. After that period is passed, however, they become daily more hardy, so that they will roost in trees during winter if permitted without any injury, unless unusually severe frost may cause frost-bitten toes. The period of danger being thus limited, it is well worth while to take special care while it lasts. Special and ample shelter should therefore be provided, and if the hens are at liberty they should be driven under it on the approach of a shower; by which means, if well fed, the dangers of infancy may be warded off. For a period of one to three weeks—depending on the weather—the hen should always be confined, the Turkey chicks being, however, allowed to run out on the grass during dry days. Such management, with plenty of good meal as food, will bring the chicks on with little difficulty. Many farmers feed only on grain after a week or two, but on such diet the young birds never grow large, and rarely show good constitutions. There is another thing to be remarked: Many careful observers have recorded that, when given the option, Turkeys seem to prefer the leaves of the Dandelion to any other green food, and it has been found that such leaves liberally given conduce greatly to the health and vigour of the broods. The well-known medicinal properties of this plant (employed in medicine under the name of taraxacum) both as a tonic and alterative, make these effects easily understood; and it is therefore well worth while to encourage the growth of the Dandelion wherever Turkeys are reared. This object, as gardeners well know, is only too easily attained in most places; but even if necessary to scatter a few heads of seed over small patches of ground, it will pay well to do so. In default of the Dandelion, Lettuce and Onions chopped fine form the best substitute. Dryness and cleanliness are, however, the chief requisites in Turkey-rearing so far as prevention of deaths is concerned.—(*Cassell's Illustrated Book of Poultry.*)

EXPERIENCES WITH COMB FOUNDATION.

THE report which Mr. Procter gives is very interesting and valuable, but it is certainly puzzling to read the very different accounts which are given by persons who try these comb foundations. I gave mine honestly some time ago on the invitation given in our Journal, nor can I write a word beyond my own experience. It is not so promising as I could wish it, for it is evident to the simplest understanding that if Mr. Procter's experience were general we bee-keepers would find ourselves in a most favourable condition for the successful management of our apiaries. Why is it that such men as Mr. Cheshire and even Mr. Raitt have had to try, and are still trying, all sorts of experiments to strengthen

comb foundation? They, like myself, have been disappointed again and again. The combs we have used have "sagged" and continue to do so. Crooked combs, curling corners, breakdowns have with the majority (so far as reports have come in) occurred again and again, and hence at the cost of much trouble and labour and expense recourse has been had to every sort of device for remedying the evil by the adoption of strengthening materials of every imaginable kind. It can be no fancied difficulty which has given rise to all this inquiry and trouble. The fact remains, that while some apiarians like Mr. Procter have been greatly successful, others, "the majority," among whom I must reckon myself, have been met by difficulty and disappointment. It may be—it must be—that there is something in the mode of manipulation or the character of the comb foundation itself, or some other treatment still a secret to the apiarian world, which leads to the success we are told of. This we want to get at, and he would be a real benefactor who should plainly and minutely describe how after seven years of comparative failure (see page 107) he at last attained that perfect success which is described. Are we all mere blunderers? It is very certain there can be no confidence or more general adoption of comb foundation till our practical difficulties are removed. We are not throwing out mere ideas, but stating facts within our experience.—B. & W.

EXTRAORDINARY SWARMING.

MR. A. PETTIGREW has forwarded us the following letter accompanied by his reply:—"Mr. J. Greatorex, farmer of Stretton, a little village close to Burton, started this year with one stock very well up in bees. Swarm No. 1 came May 20th, No. 2 (or cast) June 3rd. No. 1 swarmed June 7th, and cast July 3rd, while the swarm which came from No. 1 (June 7th) itself threw off another July 2nd, which, however, returned to the hive. He has thus increased his one stock to five, and would have had six had not one swarm returned.—CHARLES YOUNG."

[Though bees swarm readily this year everywhere, the above-mentioned instance of a swarm from a virgin hive probably stands alone, and should be remembered. As such superabundant swarming weakens hives we trust Mr. Greatorex will feed all his five hives into good stocks and carry them well through winter.—A. P.]

REVIEW OF BOOK.

The Bee-keepers' Manual, by the late Henry Taylor. Seventh Edition. By ALFRED WATTS. London: Groombridge and Sons.

THE name of Henry Taylor was at one time very familiar among apiarians, and the "Bee-keepers' Manual," of which he published six editions in his lifetime, was regarded as the most authoritative guide to those who were about to enter upon the pursuit of bee-keeping. Many changes have taken place, and great progress has been made in apiarian science since Mr. Taylor wrote, and it was necessary for a work of this kind if it was to keep pace with the times, and to be of good service as an instructor, that it should be very much amplified. The construction of the work is the same as it came from Mr. Taylor's hands so far as the subject is treated under the heads of Summer, Autumn, Winter, and Spring Management, and this is a method we like; but in addition to this the whole subject of bee management has been gone into upon modern principles, and all the various forms of wooden and straw hives together with all modern apiarian apparatus are fully treated upon. We consider this edition of Taylor, under the editorship of Mr. Watts, as good a manual for the bee-keeper as is to be found in the language.

BRITISH BEE-KEEPERS' ASSOCIATION'S SHOW.

SECOND NOTICE.

ENGLISH comb foundation brought but two entries, which appeared in the catalogue; Messrs. Raitt and Neighbour, the former with sheets of great finish, being placed first. Mr. Abbott staged flat-bottomed thick foundations, the eel walls of which on the opposite sides of the sheet do not stand in that beautiful relation to one another which they occupy in natural comb, and which has been followed in every other specimen of foundation we have seen. The cottagers' classes for honey were all good; Messrs. Skinner, Walton, Freeman, and Sells were well to the front. The American thin flat-bottom foundation for supers exhibited by Messrs. Newman & Son of Chicago was of wonderful regularity, and in sheets 36 inches by 16 inches.

With extractors Mr. Cowan was again to the front, winning with a machine which perfects his invention of last year. The combs are reversed automatically, and the gearing which effects this is as simple as it is ingenious. The driving pinion and the pinions which reverse

the sides of the combs stand respectively in the centre and at the ends of a long narrow box, which forms part of the revolving cage. A continuous sliding rack fits into the teeth of these three pinions. When the driving pinion has sent this rack as far as the end of the box will permit it to travel the combs are set with one face outwards, but by reversing the turning of the handle the pinion moves the rack towards the other end of the box, and so by playing on the comb pinions gives a half revolution to the comb cages. The mechanism is so contrived that it can be very easily slipped to pieces for cleaning, while the gearing cannot be touched by the honey, which a strainer permits to be bottled direct from the machine. Mr. Walton exhibited a less pretentious but at the same time an admirable low-priced extractor, which was placed second. The spindle is passed through the fixed part of the can cover. On the end of the former is a wheel about 2½ inches in diameter, having a thick indiarubber band for its tire. Against this comes the similar tire of the driving wheel, the two simply slightly pressing each other. The result is a very smooth and noiseless movement, which does its work excellently. With Mr. Cowan's extractor for our *bourgeoisie*, Mr. Walton's for those with narrower purses, and Mr. Abbott's Little Wonder at less than half the price of the latter of these two for those who do not mind for economy's sake hard work and some inconvenience, we think but little remains to be done, but perhaps Mr. Cowan may show us next year that we have been mistaken. The judging of the beeswax puzzled us. It may be that there are virtues in wax which we have never discovered.

The New Invention Class brought out the unprecedented number of twenty-four entries, but some of these were hardly entitled to a position in the class at all—for example, Dr. Pine's lotion and bee veil, but yet enough remained to show a wonderfully increased interest in apicultural matters. Mr. Cheshire received the silver medal for his new method of fixing foundations by wires, with which the readers of this Journal are already familiar. He was also commended for a divisional feeder, of which the Judges report that it displayed great ingenuity and is very well fitted for feeding inside the hive without interfering with the colony of bees; but its cost must preclude it from use except in those cases where an amateur considers expense of little consequence. Mr. Hooker exhibited an ingenious and useful way of setting foundation in frames. A saw-cut runs through the top bar. This is splayed open by a screwdriver or thick nail. A little double-pointed tool is stuck into the two sides of the top bar as they are held open. The screwdriver being withdrawn admits of the insertion of the edge of the wax sheet. The tool is removed, the wood springs back, and the sheet is firmly held. Mr. Cowan showed a very convenient swarm-catcher which, placed at the end of a pole, can be closed at once by simply pulling a string after securing the fugitives. Mr. Hunt introduced the Hampshire bee feeder—a tin can with a glass tube running through the bottom of it. Into this a woollen plug fits, permitting the syrup to drip out so slowly that the bees are sure to take all that is given. Mrs. Leigh Spencer's bee skirt for ladies' wear is worth the attention of all whom it may concern. It is a sort of bag for the skirt, with strings or elastics for the ankles. Mr. Parsons exhibits waxed paper guides, but these have long been tested and found wanting. When bees are busy they adopt them and build combs from them, but in idle times one finds a fibre and the teasing-out begins, which brings perhaps a whole comb to destruction. Mr. Parsons' model of a slinger is wrong in principle. Much dead weight must be driven in addition to all the honey slung, and the comb when at the bottom of the circle it describes has to sustain a strain greater by twice its own weight than it bears when at its highest point. If the latter force is sufficient the former must be excessive.

The remaining classes call for little remark, except that exhibiting diagrams, now perfectly well known and in which Abbott Bros. deal, can hardly be thought meritorious enough to entitle them to a bronze medal without reducing somewhat the estimation which we should suppose the Association would like to see attached to its honours. In conclusion a study of the hive classes shows clearly that exhibitors generally are striving after greater facility in moving frames, and the tin or zinc runner and distance pin are now quite the rule. Elasticity is found in every winning hive. It would perhaps put it more strongly to say that there cannot be a good hive without it. The value of double walls is no longer overlooked, while chaff covers are used for wintering. Results speak yet more eloquently of progress, the comb honey of this Exhibition being finished in appearance and marketable in form, while the extracted by contrast brings to mind some of the dark cloudy honey which entered the prize list in former years, but at which no one would now look. The Association has spread much of the light of which this is the evidence, and it ought in consequence to receive our encouragement and support.

OUR LETTER BOX.

Chicken Suffering from Roup (Mr. Wardle).—The chicken you sent was affected with this disease, which is marked by an offensive discharge from the nostrils, froth in the corners of the eyes, and their lids swollen. It is generally caused by exposure to excessive wet and cold, and is contagious. Wash the head daily with tepid water. Give to each bird daily one grain of sulphate of copper mixed in oatmeal mashed with ale, and plenty of green food. Separate the diseased fowls from the others. We submitted the chicken to careful treatment, but it has since died.

Ducks Unhealthy (J. R. C.).—Your account of the Duck's malady is very extraordinary; we have never known any suffer in a similar manner, and are

inclined to think they must eat some poisonous water-weed. We advise you at once to get a competent person to make a post-mortem examination of one. If too closely confined Ducks will die of liver complaint, but the symptoms are hardly such as you describe.

Dorking Cock Wheezing (A. G.).—The Dorking cock is suffering from cold or incipient roup. In either case the treatment would be the same. Give castor oil freely, a tablespoonful at a dose, and every other day. Twice or three times per day for a week feed the bird on stale bread steeped in strong ale. Keep him in a dry place, and let him have sun if possible.

Transferring Brood (F. G., Exeter).—Transfer the brood to the frames in the usual way. This will only occupy three or four of them at most, and give foundation in the remainder. Put one or two sheets of foundation between the brood combs according to the strength of the bees. By continually moving the old combs to the outside of the cluster the eggs laid by the queen will all be placed in the foundation. When all the brood has hatched from the old combs remove them and supply foundation in their place. Feed of course until wintering condition is reached.

Driving Bees (W. B. W.).—Your bees may be driven from their hives by anybody who has courage enough to blow some smoke from fustian rags into their hives amongst them, turn the hives on the crowns (upside down) and place empty hives on them mouth to mouth, and roll tablecloths round the junctions to keep the bees in. When this is done commence at once to drum on the bottom hives with both hands, or two books, or two pieces of wood, and continue this work for fifteen or twenty minutes. This drumming disturbs the bees so much that they run up into the empty hives.

Rats (Somerset).—Coal tar smeared about the entrances of their holes and poured into the drains they frequent may drive them away. Apply to the gas-works for the tar.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51°32'40" N.; Long. 0°8'0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1880. August.		Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun.	1	29.907	57.2	54.8	N.	60.3	70.2	53.0	114.4	52.2	
Mon.	2	29.650	59.4	56.3	W.	59.9	68.5	50.0	111.2	47.0	
Tues.	3	29.877	62.2	55.8	N.	59.4	72.6	47.8	124.8	44.8	
Wed.	4	29.918	66.4	61.6	W.	60.8	74.7	57.3	116.6	55.3	
Thurs.	5	29.879	64.0	61.0	S.W.	61.6	78.6	57.4	125.3	53.4	
Friday	6	29.628	65.3	62.2	S.W.	62.3	73.7	58.4	92.6	55.4	
Satur.	7	29.613	63.3	58.3	S.W.	61.6	69.2	50.4	104.6	47.4	
Means.		29.731	62.7	58.6		60.8	72.5	53.5	112.8	50.8	

REMARKS.

- 1st.—Rain in early morning, fair day, but much cloud and little sunshine.
- 2nd.—Dull morning, rain from 10.30 A.M. till 1 P.M., fine in afternoon with bright sun, showers in evening.
- 3rd.—Cool but very bright morning, fine day, overcast at intervals.
- 4th.—Moderately fine day, but not much sunshine.
- 5th.—Fine bright morning, afternoon and evening hazy, close, and oppressive.
- 6th.—Dull morning with spots of rain, shower at 1 P.M., dull cloudy afternoon and evening.
- 7th.—Fine and bright early, cloudy morning, wet and windy afternoon and evening, heavy westerly gale in night; steady and rapid fall of the barometer all day, steady and rapid rise all night.

Temperature rather lower than that of last week, though there was so much less rain, rather low also for the time of year, but remarkably like that of the first week of August last year.—G. J. SYMONS.

COVENT GARDEN MARKET.—AUGUST 11.

TRADE is now very quiet in our market, and all classes of goods have experienced a fall, large quantities of fruit reaching us from the continent.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½ sieve	2	6 to 4	6	Nectarines..	dozen	2	0 to 1	6
Apricots.....	box	1	0	2	Oranges.....	£ 100	4	0	12
Cherries.....	£ lb.	0	0	0	Peaches.....	dozen	3	0	10
Chestnuts.....	bushel	12	0	16	Pears, kitchen..	dozen	0	6	0
Figs.....	dozen	2	0	4	dessert.....	dozen	2	0	3
Filberts.....	£ lb.	0	0	1	Pine Apples....	£ lb.	1	0	2
Cobs.....	£ lb.	0	0	1	Plums.....	½ sieve	2	6	4
Gooseberries...	½ sieve	2	6	4	Raspberries....	£ lb.	0	2	0
Grapes.....	£ lb.	0	9	3	Strawberries...	£ lb.	0	6	1
Lemons.....	£ 100	6	0	10	Walnuts.....	bushel	0	6	0
Melons.....	each	2	0	4	ditto.....	£ 100	0	0	6

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms.....	dozen	1	0 to 1	6
Asparagus.....	bundle	0	0	0	Mustard & Cress..	punnet	0	2	0
Beans, Kidney....	£ lb.	0	0	0	Onions.....	bushel	3	6	0
Beet, Red.....	dozen	1	0	2	pickling.....	quart	0	0	0
Broccoli.....	bundle	0	9	1	Parsley.....	doz. bunches	6	0	0
Brussels Sprouts..	½ sieve	0	0	0	Parsnips.....	dozen	1	0	2
Cabbage.....	dozen	0	6	1	Peas.....	quart	0	9	1
Carrots.....	bunch	0	4	0	Potatoes.....	bushel	3	9	4
Caulicums.....	£ 100	1	6	2	Kidney.....	bushel	4	0	0
Cauliflowers.....	dozen	0	0	3	Radishes.....	doz. bunches	1	6	2
Celery.....	bundle	1	6	2	Rhubarb.....	bundle	0	4	0
Coleworts.....	doz. bunches	2	0	4	Salsafy.....	bundle	1	0	0
Cucumbers.....	each	0	4	0	Scorzoneria.....	bundle	1	6	0
Endive.....	dozen	1	0	2	Seakale.....	basket	0	0	0
Fennel.....	bunch	0	3	0	Shallots.....	£ lb.	0	3	0
Garlic.....	£ lb.	0	6	0	Spinach.....	bushel	3	0	0
Herbs.....	bunch	0	2	0	Turnips.....	bunch	0	4	0
Leeks.....	bunch	0	0	4	Vegetable Marrows	each	0	2	0



19th	TH	Reading Show.
20th	F	Bradford Horticultural Show.
21st	S	
22nd	SUN	13TH SUNDAY AFTER TRINITY.
23rd	M	
24th	TU	Royal Horticultural Society, Fruit & Floral Committees at 11 A.M.
25th	W	Isle of Thanet Horticultural Exhibition.

ROSES FROM CUTTINGS.

NEVER, perhaps, has the value of dwarf Roses been more apparent than during the present season. In the southern counties and favourable localities standards have passed the winter with comparatively little injury, but over a vast extent of country, and in the north especially, most of the trees are dead, and the survivors present a miserable appearance. In a majority of gardens only the dwarfs are healthy, and these in not a few instances are growing luxuriantly. These plants may have been worked on the Manetti, seedling Briar, or Briar cutting stocks, but most of them are practically on their own roots, and probably would have been equally healthy had they been grown from cuttings instead of having been budded or grafted. It is certain that nearly all Roses on their own roots grow freely and produce fine blooms. A few may not do so, but they are few indeed, and can either be dispensed with or given the peculiar treatment they require.

It is a little strange that own-root Roses are not raised in any large numbers in nurseries. Manetti cuttings are struck by the million, and Briar cuttings by thousands, while seedling Briars are raised in very large quantities; but Rose growth is left on the trees until the spring, and the shoots that, if taken at the right time would have made cuttings innumerable, are consigned to the flames. Nothing better can be done with them at that time, for not one in a thousand will strike if inserted at pruning time, while, on the contrary, few will fail if properly chosen and carefully inserted from now until November.

The best wood for cuttings is that which is short-jointed and rather firm. Sappy luxuriant shoots will not do, and weak stubby growths are not desirable. The latter may emit roots very well, but they are long in making good plants.

Seven years ago I inserted in three short rows a dozen cuttings each of the Manetti, the Briar, and John Hopper Rose. All the Manettis grew, all the John Hoppers, and nine of the Briars. In due time the stocks were budded, but the John Hoppers took the lead and kept it, and are the best bushes now. This is the only fair way to test own-root Roses against worked plants. I have seen so-called trials of the different types conducted in this manner—cuttings of Roses have been planted at the same time that buds of the same Roses have been inserted in other stocks. Under these conditions those budded have made strong plants the soonest, and their superiority has been pointed out over the others; but it was forgotten that the budded plants had a clear year's start. Let

the plan above mentioned—namely, cuttings of stocks for budding, and of Roses for growing and blooming, be inserted at the same time, and it will be found that the plan of working the Roses on other stocks does not possess such striking advantages as is popularly supposed.

Rose cuttings, I have said, may be inserted from now until November. The present time is preferable, especially when only a few scores or hundreds are required; but if thousands are needed it is more profitable to insert them in the autumn, or when the Manetti or Briar cuttings are planted. It may very naturally be remarked, that if August is the best time for inserting ten Rose cuttings, it is also the best for inserting ten thousand. That is the logical view of the case, but gardening practice cannot always be successfully conducted by rules of logic.

An important element of success in striking Rose cuttings in summer is keeping them perfectly fresh—*i.e.*, they must be just as fresh when placed in the soil as when cut from the trees; in fact, the work cannot be done too quickly. If once the cuttings shrivel—and they shrivel rapidly—few will grow; but if quite fresh, well selected, and rightly inserted, few will fail. This essential of perfect freshness can be maintained when the number of cuttings is limited, but cannot at any rate without some trouble and difficulty when they amount to thousands, and those who have to be entrusted with the work cannot be depended on for exercising the care that is really requisite when they cannot see the necessity for it.

As above mentioned, rather firm short-jointed wood is the best for cuttings.—Wood containing much pith on the one hand, or very hard and wiry in appearance on the other, should be eschewed. Those shoots that have produced blooms make excellent cuttings, and the lower portions of moderately strong shoots strike freely. It is not necessary to take them off with a "heel," though such "slips" will grow. The cuttings may be about 6 inches in length, a little more or less not being material. They should be cut smoothly across close under a joint with a very sharp knife, all the leaves being removed, but not the buds, except the top leaf, or if very short-jointed the top pair. The cuttings should be inserted quite up to these top leaves, or in other words 5 inches of their length being in the soil and 1 inch above it. The soil is preferably rather light in texture, made fine by careful digging, but trodden rather firmly before planting the cuttings. They may either be placed in trenches, prepared as if for planting Box edging, or be inserted with the dibber, the worker standing on a board and planting by its edge, as if pricking-off Cabbage plants. I like this plan the best. If the Rose cuttings are placed in trenches some sand should be put round them before levelling-in the soil and firming it. If they are dibbed-in, the surface should be covered half an inch thick with rough sand or gritty road sweepings. A blunt dibber should be used, which forces the sand downwards, on which each cutting must rest firmly, and the soil must be made firm especially at the base of the cuttings. Thousands of cuttings of all kinds are spoiled annually by simply hanging them, the soil at the base being loose, while near the surface it is patted round the cuttings with some care. The very reverse of this should occur both when inserting cuttings and young plants of all kinds.

Rose cuttings inserted now are the least trouble if a partially shaded border can be afforded for them. They should be placed about 4 inches apart in rows a foot asunder, there to

remain until the plants are large enough for removal, as many of them will be the following autumn, the others being then replanted at wide intervals to make further growth. If not in a shaded border and the sun is bright, they should be shaded with mats and syringed frequently to keep the foliage fresh, as the longer this is retained the sooner will roots be emitted. Any shading that is employed must be removed at night, so that the cuttings can have the benefit of the night dews. I have struck many hundreds of Rose cuttings according to the plan indicated, and if others attempt the same practice and fail it will be because of some error in choosing the cuttings or fault in management. Those having frames at their disposal can strike the cuttings more quickly, but the lights should be drawn off during fine nights.

Autumn propagation is more simple, and when large quantities are required more convenient, but as a rule I have found it less certain. As soon as the leaves change and can be shaken off, the cuttings may be made and inserted in trenches as above described. Sometimes, however, the leaves cannot be shaken off before December. In that case they may be cut off about the end of October or early November, for by that time the foliage has done all that is needed for the wood; and if the evaporating surfaces—the leaves, are removed, the cuttings may be prepared in bundles of hundreds, and with very little care no shrivelling will occur. They do not need to be inserted in a shaded border, but any open position will be more suitable. Cuttings divested of foliage and inserted in the autumn may with advantage be an inch or two longer than those planted in summer, but only an inch of each cutting should be above ground in both cases.

Manetti and Briar cuttings for stocks are made and inserted much in the same manner as soon as possible after the leaves have fallen. Yet a most important difference must be observed. In making Rose cuttings none of the buds require to be removed, as these push from below the surface and make fine growths. No winter in England can kill Roses thus prepared. But cuttings for stocks must have all the buds removed from the portion inserted in the soil with scrupulous care, or "suckers" will spring up continually, to the great annoyance of the cultivator and ruin of the plants. Stock cuttings are made about a foot long, inserted to a depth of 5 or 6 inches, the soil being drawn or banked up, the remainder within an inch of the top. They are thus in ridges, which before budding are levelled down; the bark then runs freely, the buds are inserted near the root, and the plants properly planted become in due time own-root Roses. This, however, is nurserymen's work, and no one can do it so well as they can. It is the most convenient for raising plants by the million, and millions of splendid plants are so raised annually. I write not for these skilled professionals who "know their book" better than I do, and who may be depended on for supplying satisfactory plants; but my remarks are intended for those amateurs who have, the Editors inform me, desired some plain instructions that will aid them in indulging in the pleasure of striking a few Roses, not with the object of growing exhibition blooms, but for producing flowers, the work of their own hands, for rendering their gardens gay in summer and their rooms sweet. Although work presses on all sides I cheerfully comply in the furtherance of an object so laudable and desirable. —A NORTHERN GARDENER.

PRUNING PEACH TREES.

MORE than once the importance of pruning Peach and Nectarine trees immediately after the crops have been gathered has been adverted to in the pages of the *Journal of Horticulture*. The practice, however, is far from general, and trees in many gardens remain crowded with growth that is absolutely inimical to health and fruitfulness, thinning not being done until the leaves have fallen. I am referring now more particularly to trees grown under glass. At the present moment there are hundreds of Peach trellises densely covered with wood and foliage that ought to be at once carefully removed. To permit the shoots that have borne fruit to remain on the trees simply for the purpose of being cut out in winter, either betrays a want of thought on the part of the cultivator, or the want of time to do that which he must know ought to be done promptly.

Overcrowding of the growths of fruit trees of all kinds is one

of the commonest errors committed in gardening, and it is especially apparent in the training of Peach trees. Few will dispute the value of hard, brown, short-jointed wood thickly studded with triple buds for increasing a full crop of fine Peaches and Nectarines. It is a mere accident if such wood is produced when the trees are crowded with foliage throughout the summer, the shoots being trained to the trellis from 2 to 3 inches apart and covered with two or three layers of leaves. How can the sun act on that wood to render it fertile, and the syringe be applied to the foliage to cleanse it from red spider?

It is as easy at the present time as during the resting period of the trees to determine which portions can be advantageously removed and which retained on those trees from which the fruit has been gathered. If one-half, or in some cases nearly two-thirds, of the growth were cut away now, that remaining would be in a greatly improved condition at the end of the season, and a more certain crop and better fruit would follow another year.

After much experience in Peach culture, and an intimate acquaintance with both failure and success, I urge strenuously the importance of making an intelligent selection now of those growths that must be depended on for next year's crop, and to give these shoots every advantage by the removal of others that have done their duty, for to permit them to remain to be cut out in winter is needlessly exhausting the trees, and a sure mode of impairing their fruitfulness. The trees should be so thinned now that the sun can shine on every leaf; and if these leaves are kept clean and healthy, as they easily may be, wood essentially fruitful in character will certainly be produced, and little winter pruning will be needed.—AN OLD GROWER.

LAXTON'S NEW PEAS.

AT sowing time Mr. Laxton kindly sent me small packets of seed of his three best new seedling Peas; and as one of them, John Bull, was figured with accompanying remarks on page 137, I propose giving my experience with two of those received somewhat earlier than usual.

Mr. Laxton is undeniably a great authority on all matters pertaining to Peas, and on this account I was prepared to find John Bull, from the brief description received with it, what it really is, "the king of Peas." It is very sturdy and branching in habit, very prolific; and the pods, though not of sensational size, are large, and like another of Mr. Laxton's excellent varieties, The Marvel, are literally hard packed with peas. It is a main crop variety, about 3 feet in height, and must eventually become one of the best of market sorts. The latter remark is often made about other varieties, simply because the pods are of great size, and the quality perhaps fairly good, no regard being paid to the heights of the respective varieties, and we thus see a variety recommended which grows 6 feet in height. The fact that stakes are not used by the market growers, and that thick pods cannot be sold, are apparently forgotten.

Another variety which I will allude to is aptly named Minimum, which, according to my experience, is a real gem for early work, and unequalled for cultivation either in boxes or pots. In habit it is very dwarf, growing to about 10 inches in height, and so very branching that for the future it will be sown very thinly. The pods are freely produced, are about 2 inches in length, and the very sweet peas are so closely packed in them that they flatten each other in a manner resembling Indian Corn. At a later and more seasonable date I shall refer to the culture of this variety in some remarks on growing early Peas generally.—W. IGGULDEN.

THE *Journal of Horticulture* has lately become famous amongst the profession for the faithfulness of its illustrations, but in my opinion the likeness of John Bull Pea at page 137 is underdone, as the woodcut neither gives the true size nor beauty of it. "Thirteen peas in a pod," however, conveys more idea of its productiveness, and its other qualities cannot be overrated, as it is one of the most wonderful Peas ever introduced. In the spring of this year we were fortunate enough to have twelve seeds of it sent to us, and the produce of these gladdens our heart every time we enter the garden.—A KITCHEN GARDENER.

EUCOMIS PUNCTATA.—A lady from Sligo who has this interesting and too rare plant now flowering finely sends me the following description that would seem to commend it to the notice of your readers:—"I have it now beautifully blooming in my morning room, which it scents most fragrantly. It comes into flower about this time, and remains for the better part of six weeks, the admiration of every visitor. The colour is waxy white, and the florets are closely set on a central spike, not unlike a tall Hyacinth. After measuring this spike, which is

unusually healthy, I find it 2½ feet high, and clothed almost throughout. It is almost hardy—certainly as hardy as *Salvia patens*, and merely requires some protection in winter. The bulbs are, I believe, very cheap.”—W. J. M. *Clonmel*.

STOCKS FOR SPRING FLOWERING.

WHILE fully agreeing with “R. P. B.” on page 138, as to the value of East Lothian Stocks for an early spring, and also a late summer display, I cannot think that plants raised from seed sown now will make satisfactory flowering plants next spring. I have grown these Stocks for many years, and have succeeded best with them when the seed has been sown in rich soil in the open ground about the last week in May or first in June. Plants from this sowing commence flowering in October, and continue improving throughout the winter, attaining the zenith of their beauty about March or April. Dense bushes 2 feet high and as much in diameter, covered with large double pure white flowers during the winter and early spring months, cannot easily be surpassed for decorative purposes. The scarlets are equally fine, but the whites are more appreciated. I have sown seed early in July, and had small attractive plants the following April; but when it has been sown later than this the plants have not been strong and flowered well until the summer.

Your correspondent fails to convey to my mind what he had in his own when writing. He says, “Young plants to flower next spring are now in 4-inch pots, but it may not be too late to sow the seed in the south of England.” This clearly implies that they may not be too late for spring flowering; but he then goes on to say that having been transplanted at the foot of a wall “they may remain there to flower or be transplanted in March.” This implies that they are intended for summer flowering. “R. P. B.” is usually commendably explicit, but in this case his remarks appear to require a little explanation to render them intelligible. I can grow the Stocks very well, but cannot understand the instructions referred to, and if they are puzzling to one it is conceivable that they will be to others of possibly less experience.

If I were asked how to proceed now to have Stocks for flowering next spring I should reply—Sow at once, without a day’s unnecessary delay, seeds of the London Intermediate variety. It is not so fine perhaps, and certainly not so continuous and long-lasting as the East Lothian; but it is quicker, and when well grown beautiful and sweet. Plants for early blooming are ready for pricking off, and when sowing thus rather late there is no time to lose by checks in transplanting. A few seeds should therefore be sown very thinly in small well-drained pots of rich turfy soil. The seedlings can be thinned, leaving about three in each pot, and as soon as the plants are fairly growing, with the roots just coiling round the pots, shift them into pots a size or two larger, making the soil very firm. The small pots must be very clean inside, well washed and dried before they are used, or the roots will adhere to them, and the plants cannot be shifted without injury. The seed pots should be plunged in ashes in a frame, but the lights should be drawn off during all favourable weather both by day and night. For many purposes one plant in each pot is preferable to three, but in that case the seed should be sown earlier, and a greater number of pots must be provided, for it cannot be expected that every plant will produce double flowers; but there are sure to be one or two doubles in every pot of three plants. Well-grown plants of these Stocks, even if small, are extremely valuable for various decorative purposes early in the season. They can be wintered in pits or near the glass in a light greenhouse.

Brompton Stocks are fine for pots or beds; indeed, grand when they produce spikes 2 feet long and flowers 3 inches in diameter. There is just time for sowing the seed. Sow it thinly, and treat the plants as recommended by “R. P. B.” for East Lothians.—A SOUTHERNER.

SCALDED GRAPES.

WITHOUT entering into any controversy with your correspondents regarding their respective opinions of scalding or other of the difficulties that surround Grape-growing, I shall just give a little of my experience that may be as useful to your readers, and I may state that this experience is with nearly two hundred Vines and with over twenty varieties. Last season, from a young cane that I had brought up in order to cut out the old one that had broken badly, I had several promising bunches up to the scalding period, when they were scalded so very much more than the others in the house that my attention was especially drawn towards them, and when, as usual with all such difficulties, I at once attempted to ascertain the cause. Air being the remedy frequently recommended I was the more interested, seeing that

the Vine was growing close to a spout that brought the water into the cistern, and this hole being constantly open these particular bunches secured more air than any others in the house. The nights being cold the temperature occasionally with them would be from a little over 50° to close up to 90°. This end of my vinery, by the aid of a flue, being about a fortnight earlier than the other end, and where the principal of my Lady Downe’s were, I decided to shut up close at nights, also aiding by fire, and the result was very few scalded Grapes. My conclusion then was, with old Vines (with young canes the difficulty is greater) by keeping the temperature at night at 70°, and by day not exceeding 85°, during this period of the Grapes’ growth, damage from scalding could be avoided. During this period it is not desirable that any Grape should be subject to extreme temperatures, but, undoubtedly, Lady Downe’s stands extremes the worst. This year I purposely allowed the air from the hole to act on the bunches as the year previously, but with more attention, as I had no idea of sacrificing my Grapes; but in spite of my closer observations, the scalding stole a march, and the result again is fully two-thirds of the berries are gone.

The result of well-ripened wood is similar in result to breeding from healthy stock—good results; and in badly ripened wood I am thoroughly convinced we have the forerunner of shy-setting, stoneless berries, shanked berries, and also scalded berries. From ill-ripened wood we secure ill-constituted Grapes, and such Grapes are much more than usually subject to all the ills that Grapes are subject to. Ripen the wood, and you may set Muscats at 50° and afterwards grow them to perfection; but if the wood be ill-ripened, then you may bring an army to your aid and all the aid will fail. Showing that ripeness of wood has to do with scalding, or chilling if you like, those with Lady Downe’s at stages before their canes have reached the top of the house will have noticed that the scalding is worst in the bunches from last year’s wood, and especially so over cisterns, or in any other situation where the wood had the least chance of ripening.—JOSEPH WITHERSPOON, *Red Rose Vineries, Chester-le-Street*.

P.S.—Some of your readers may be interested to know the state of my vineries this year. If so, I am glad to inform them that I am proud of them. I have 1600 bunches of fine Grapes.

NEW ROSES AT CHESHUNT.

SEEING is believing, and something more. Seeing Roses in the row growing is a very different thing from seeing them in the box. Impressed with this persuasion I have been glad of an opportunity to pay another visit to Cheshunt; and though not fortunate enough to find there my friend Mr. George Paul, yet I fared well under the guidance of the experienced foreman Mr. Gater. August 12th is a little late under ordinary circumstances, but circumstances of late years have not been ordinary, and the Roses seem hardly to know when to begin blooming and when to stop. The three or four harvest days which are cheering the country had woke up the Roses also, so that I saw still some very excellent blooms, especially of the Marquis of Salisbury, with which I was perfectly astonished. Such size and substance and yet perfect shape I have rarely known together. Several might be described as three *Senateur Vaisse* rolled into one, having all the excellence of that old favourite with a vast advance upon it in magnitude. I saw many plants of Mrs. Laxton, evidently a first-class Rose, and Charles Darwin also in great perfection. This latter, however, seems strangely susceptible to mildew.

Among the ladies, or rather gentlemen, not yet out a very striking Rose is in preparation, after the manner of Dupuy Jamain, but larger and very robust, and which I hear is to bear the name of the justly popular President of the Reigate Rose Association. Messrs. Paul & Son have already a very excellent R. N. G. Baker. The George Baker that is to come will certainly not be less acceptable in the Surrey Rose gardens. I saw a single bloom of a Rose of very great promise, if all worked are like the seedling. It is not yet named, but is of strong growth and of a much paler pink than the generality of the deep dark Roses of Cheshunt. I also saw a large pure white Rose, several rows of it, apparently even whiter and of more substance than Mabel Morrison which was growing near to it. This latter is a Cheshunt sport from Baronne de Rothschild.

The Bennett Roses were also very interesting. For the first time I looked upon rows of them. There were also many in pots. These Hybrid Teas have sprung this year at a bound into an important class. They have evidently great substance—almost too much for a wet season, and great beauty of bud. Pearl, Viscountess Falmouth, Beauty of Stapleford, and Michael Saunders were those I most admired. Duchess of Connaught is very beautiful, but too like La France. Except for the wood I hardly see how they are

to be distinguished. The constant rains had prevented these looking their best. One other Rose I was struck with—Egeria, said to be an enlarged Princess Mary of Cambridge. Cannes la Coquette I was sorry not to have time to go and see, having heard it highly spoken of by that fast-rising authority Mr. C. H. Hawtreys. With such a guide and in such a garden a more interesting Rose visit it were hard to pay.—A. C.

THE POTATO DISEASE.

THE Potato disease is to the fore again in the columns of the Journal, and well it may be seeing that it is so prevalent in fields and gardens. Like "A KITCHEN GARDENER" I am unable to accept the dictum of a correspondent on page 110, that "about one-half of the losses by the disease arises from the want of knowledge and apathy on the part of the growers." I have perhaps paid as much attention to the subject as the writer in question, and have made as many experiments in the selection of seed, manures, and mode of treatment as most people have, while I have certainly had more than "three-quarters of an acre" of land for experiment, or indeed three-quarters of a mile either. Our author thinks that with care in the raising of seedlings some may be produced absolutely disease-proof. Let us hope it may be so, but the prospect is not good. I can remember when the Fluke, Paterson's Victoria, Redskin Flourball, and some others were uninjured for a year or two. But what about them now? Then followed the Scotch Champion, Magnum Bonum, and Grampion; but I have seen all these varieties affected this year in a garden where the greatest possible care has been taken in their cultivation, and special means were adopted in selecting and preparing the seed. I am sorry to have to record this visitation, which was certainly not the result of "apathy" on the part of the grower, while his "knowledge," scientific and practical, of gardening in its widest scope is, perhaps, not exceeded by that of any reader of the Journal.

Ever since the terrible destruction of the crops in 1845 I have been "mixed up" with the malady, and this more than once to such an extent that, in common with others who have been employed "sorting" Potatoes for weeks together, the heaps often a mass of rotteness, our fingers have become diseased, and we have had to relinquish the work and enjoy a holiday with our hands in poultices. I have thus very intimately been "mixed up" with the disease, and from then to now have endeavoured to learn something about it practically, and to ascertain the conditions under which it spreads. Long experience has enabled me to distinguish the disease at a glance, and I am not mistaken when I state that it has attacked the varieties above named. And now, having submitted my credentials, I will refer further to this perplexing subject.

I do not attempt to enter on the philosophical part of the question and pretend to treat learnedly on spores, hyphæ, &c., or I might, as many have done before me, be floundered in a sea of scientific conjecture. Whether the roots decay by excessive rains and the plants become enfeebled and fall a prey to the apparently ubiquitous visitant, or whether the sap of the plants becomes impure by the foliage being overgorged and thus form a suitable nidus for the fungus, or whether the fungus is the original cause of the evil, matters not; the results are the same, and are governed by the same conditions—namely, a superfluity of moisture in the soil and air in combination with a high temperature.

It is well for men of science—and no one has a greater respect for those accomplished individuals than I have—to urge the importance of burning the haulm of the plants and destroying all diseased tubers instead of leaving them on the land; but I knew from most carefully conducted experiments that our scientific friends have probably not tried, that if diseased haulm and tubers are dug into the ground, and diseased Potatoes are planted in that ground, that not a vestige of the murrain will follow if the season proves hot and dry, while during a wet, warm, and murky season the crops are liable to destruction in gardens where the above preventive measures have been rigidly carried out. That the burning of the haulm and diseased tubers is calculated to destroy a great number of diseased spores is certain; and if everybody—there is the point—would carefully carry out the practice indicated, much good would in all probability result; but for one or two individuals only in a parish to be thus diligent, the remainder being passive, will no more result in stamping, or rather starving, out the murrain than the persistent killing of flies by the same diligent few would end in the annihilation of those insects from the districts where they abound.

I will now record an instance bearing on the apathetic and ignorant part of the question. Last year a farmer planted several

acres of Potatoes on light sandy land. Had the summer been dry the produce would have been scabbed and worthless, but as it proved wet the crop proved valuable—realised in fact £30 per acre. If the seed had been carefully selected and special attention given to cultural details a good text would have been provided for a Potato-disease writer; but neither one nor the other was the case. The seed was just taken as it was, the small unsaleable tubers—the waste from a large store that many people would call "trash," yet a splendid disease-free crop was produced. Had the same sets been planted in rich wet ground the crop, like all others in such ground and district, would have been worthless. Seed from the above disease-free crop was again planted on poor sandy land this year, also on some heavier and better ground by the same owner, and in the former case the tubers are perfectly clean, in the latter they are seriously diseased. Much seed was sold of the celebrated crop referred to, and planted in many fields, plots, and gardens; but the disease is general in them all where the ground is low, wet, and at all rich. In such a case as this the selection theory breaks down utterly, and I have known it break down in a similar manner before. On the sandy soil referred to the rain passed through as if through a sieve, and that reason, and no other, was the cause of the clean healthy crop.

Soil so worked that the rain can pass through it freely, and much wider planting than usual, are the only modes that I find of avail in securing good and fairly sound crops of late Potatoes. Magnum Bonums and Champions are terrible soil-exhausters. Dwarf forms of those varieties with thick leathery foliage and woody-textured stems would be as welcome to Potato growers in this district where hundreds of acres are grown as would be a new planet to astronomers.

Hundreds of varieties of Potatoes have been raised during the past twenty years, but we have about as much disease as ever. Only the early varieties escape—those that are ready for digging before drenching rains combined with a high temperature call into action the fungus that devours the later crops.—A LINCOLNSHIRE POTATO GROWER.

FLORAL EXHIBITION AT THE ALEXANDRA PALACE.

ON Saturday last an Exhibition of bouquets and table decorations was held in the great hall of the above building. Very liberal prizes were offered in the several classes, which might have been expected to have induced a more vigorous competition than was actually the case. However, there were sufficient entries to occupy three long tables, and, the general arrangements being very satisfactory, the Exhibition fairly proved a success, a few groups of miscellaneous plants adding much to the effect.

Of the dinner table decorations there were several exhibitors who staged moderately tasteful examples of arrangement, but not marked by any especial merit. The prizetakers were Messrs. Dick Radclyffe and Co., Holborn; Mr. W. Soder, gardener to O. Hanbury, Esq., Holfield Grange, Essex; and Miss Annie Williams, Sutton House, Highgate, who obtained the awards in the order named. Bouquets were numerous in the three classes devoted to them, but comparatively little diversity was shown in the arrangements. The flowers employed in the brides' bouquets were chiefly *Stephanotis floribunda*, *Tabernaemontana coronaria* fl.-pl., *Eucharis grandiflora*, *Lapageria alba*, *Bouvardias*, *Gardenias*, *Pancreatums*, white *Pelargoniums* and *Spiræas*, with fronds of *Adiantum cuneatum* and *gracillimum*. Miss A. Williams; Mr. J. Prewett, Hammersmith; Mr. W. S. A. Saltmarsh, High Street, Chelmsford; Mr. J. F. Chater, Camberwell Road; and Miss E. Stuart, Seven Sisters Road, were the successful exhibitors of brides' bouquets. Of ball and bridal bouquets the best were from Miss A. Williams, Miss E. Stuart, and Mr. G. Phippen, Reading. Flower stands for a drawing-room table were fairly well shown by Messrs. Stuart and Prewett.

The principal feature of the display were the exhibits in the class for a vase of flowers not less than a yard in diameter. Prizes were offered in that class of the value of £5, £2, and £1, the result being that four competitors appeared. Messrs. Dick Radclyffe & Co. gained the chief prize with a large glass stand composed of a trumpet-shaped tube 4 to 5 feet high, at the base of which was a wide shallow basin. In the upper portion were flowers of *Lilium auratum*, bunches of Mountain Ash berries, with leaves of *Caladium* and Grasses. Around the stem were sprays of *Passiflora cærulea*, and at the base were *Liliums*, *Dahlias*, *Gladiolus*, *Delphiniums*, and small plants of *Ophiopogon Jaburan*—a bright and elegant arrangement. Miss Annie Williams was placed second with a large wicker stand containing a large number of flowers; *Gladiolus*, *Ixoras*, and *Bougainvilleas* being especially noteworthy. Mr. G. Phippen followed with an antique vase of flowers, *Clematises* being employed with excellent effect. Mrs. Sutton Abbott also obtained a third prize.

The general arrangements of the Exhibition were admirably carried out by Mr. J. Forsyth Johnson.

EFFECTS OF LAST WINTER.—Many of your correspondents have written from time to time on the effects of the severe frosts

last winter on evergreens, Roses, &c., but I have not seen any remarks on the effects of the frost on what are always supposed to be hardy trees. In the county of Rutland and in the neighbouring county of Leicester many Apple trees have been killed, and I know of two or three old Walnut trees that have been very much damaged. Many Oak trees have not come into leaf at all, and are to all appearance dead, except that they are sending out small stunted shoots from the trunk. I should like to know whether this is the case elsewhere.—E. C., *Oakham*.

A DAY AT REIGATE.

As a Secretary of the National Rose Society I could not but regard with feelings of admiration the conspicuous place which Reigate has for years taken as a Rose-loving and Rose-exhibiting locality. The names of Messrs. Baker, Waterton, Heywood, Horne, Wollaston, Sargent, and Pawle are too conspicuous in our prize lists to leave any doubt as to the zeal and excellence with which Rose-growing is carried on there. A closer acquaintance, too, with the Roses of the neighbourhood gained at the local show, at which I have had the pleasure of assisting as judge for a couple of years, has only confirmed me in the conviction that it is amongst one of the most rosy localities with which I am acquainted. It was, then, with the anticipation of a pleasant and profitable day that I accepted the pressing invitation of my good friend Mr. Baker, one of the Vice-Presidents of our Society, to spend a day with him and to visit with him some of the gardens which had become famous as homes of the Rose. I was not disappointed. The day was perfection in point of weather—bright but not too warm; and the notes which I have taken of my day's visit may perhaps have some little interest for those who have heard of but have never seen the gardens which I visited.

HOLMFELS.

This is the residence of our worthy Vice-President Mr. Baker, and is situated just on the outskirts of the town nearly opposite The Priory, the residence of Lady H. Somerset. The garden is of considerable size and prettily surrounded with handsome trees, the bedding-out tastefully and carefully carried out; but the Roses are its glory. It is here that its owner delights to be employed, and where he has acquired such solid knowledge as to the capabilities and wants of the Rose. The soil of the garden is naturally light, and hence he has adopted as his stock (and in this he sees no reason for change) the Manetti, using the seedling Briar for Teas, but preferring above all to get the Roses on their own roots; and I must candidly acknowledge that I have nowhere seen more vigorous growth or more healthy-looking plants; indeed, I may go further and say that they are more vigorous than any I know. I have not visited the nurseries of Messrs. Cranston & Co., or the garden of Mr. Jowitt, from whence such marvellous blooms have come this year, but they must be vigorous indeed if they excel these. Mr. Baker's plan in making cuttings is to take them off about this time of the year, taking them with a heel, plunging them about 4 or 5 inches in the soil, if in a spent hotbed so much the better, and then in the spring potting them up; by this means good plants are very soon obtained. As Mr. Baker obtains the most highly recommended of the new Roses, English and foreign, he is able to pass a critical judgment upon them. Of the newer foreign Roses he speaks well of Léon Renault, bright cherry red, very sweet-scented; Louis Doré, brilliant red, which I have seen very good in many places; Paul Jamain, a fine Rose like Charles Lefebvre; Comtesse de Choiseuil, a good Rose, very much in the style of Marie Rady; Charles Baltet; Marie Verdier, a fine Rose of a novel shade of colour; Baron Taylor; Gaston Levêque, bright crimson red; Julius Finger, which Mr. Baker thinks a most excellent white Rose, improved on Capt. Christy; Madame Alphonse Lavallée, bright cherry red, good; Souvenir de Victor Verdier, very dark; William Koëlle, very like Alfred Colomb; and Innocent Pirola, a pure white in the style of Niphetos, but of better form, among Teas. Of the English-raised Roses he is greatly pleased with Harrison Weir, which is in truth a grand flower, and Duke of Teck, which is very brilliant, and Countess of Rosebery and Duchess of Bedford, both good Roses. Most of the more highly prized of the older Roses were here in grand condition, and showed how carefully their wants had been attended to.

WOODHATCH

Is the very beautiful residence of P. B. Heywood, Esq., whose excellent gardener, Mr. Ridout, is well known as a successful exhibitor. The Roses (for it is about them I must mainly speak) are grown partly in the kitchen garden ground, which is stiff, and partly near the house, where the soil is light. Mr. Ridout is an advocate for the Briar cutting as a stock in preference to either the Manetti or the seedling Briar. His contention is that the roots

of the seedling Dog Rose go down with a tap root, while those of the Briar cutting spread more along the surface, and he brought a rooted plant of it to illustrate his view. The roots were spread like a fan just under the surface, and his contention is that this being the case they are more likely to receive the benefit of any mulching or liquid manure that may be applied to them; and there is, I think, a good deal of reasonableness in the view thus taken. The growth that some of his plants had made was certainly very great. Such varieties, too, as do not always succeed well, Marie Baumann for instance, had shoots 5 and 6 feet long, and stout and vigorous. In the rosery near the house things were not looking quite so well: a great many of the standard Roses had been killed, and I believe they were all to be replaced with dwarfs, and standards done away with—a consummation which is to be devoutly wished for more widely still. The general condition of the dwarfs was excellent, but Mr. Ridout is no advocate for the Manetti. Amongst other things which I saw here was a collection of most wonderfully grown Chrysanthemums, the plants being well furnished to the very bottom.

GREAT DOODS,

The residence of A. J. Waterlow, Esq., whose able gardener, Mr. Brown, is well known as a most successful competitor at our metropolitan and provincial shows. The collection of Roses here is very large, and the plants are exceedingly well grown. Here there is a difference of opinion with regard to the stocks used, for although the soil is light Mr. Brown prefers the seedling Briar to the Manetti, and some of his plants grown on this stock were wonderfully fine. But a stock is here used which I have not seen anywhere else, the old Seven Sisters; it bears a considerable resemblance to the de la Griffierie of the French, although the colour of the flowers shows them not to be identical. It is very vigorous and seems to suit this light soil admirably, the plants budded on it being very fine, and Mr. Brown says the wood works wonderfully well. The garden is especially strong in Tea Roses. Mr. Brown has generally taken the first prize for Teas, and a large number of this lovely tribe is grown in pots. Mr. Waterlow's garden is rich in many things, his houses being remarkably well filled with excellent plants well grown; but Roses were its chief attraction. Here, too, standards seem doomed, and after another season or two probably will disappear altogether. From thence we went to

STONEHOUSE,

The residence of S. Mordan, Esq. This is one of the most beautifully situated places in the neighbourhood. It stands on high ground, and a beautiful view is obtained over the Weald of Sussex, and its wonderful foliage. Great alterations have been made, and others are still in progress which will greatly enhance the beauty of the place. Here Roses are not a speciality, although I should not be surprised if they are taken up warmly. Zonal Pelargoniums are uncommonly well done, and a house full of the newest and best varieties was very gay. A Peach house, however, containing two trees on trellises was the most noticeable feature of the place. I have never seen a more remarkable case of good cultivation. One tree of Noblesse was over, but one of Princess of Wales was a perfect picture. There were at least twelve dozen fruits on it of nearly equal size. What these were may be gathered from the fact that last year there were 120 Peaches gathered from it averaging 10 ozs. each, the largest of them weighing 13 ozs. Begonias were bedded-out; but from what I have seen here as well as other places I do not think them very effective, nor are they likely to be much in favour for this purpose. Our last visit was to

WRAY PARK,

The residence of J. Simpson, Esq. A very beautiful place, where carpet bedding is carried out on a very large (to my mind much too large) scale. I should feel quite satisfied with that on the terrace, but when I saw and heard three or four men clipping away with shears, reminding one of the snick, snick, snick which one hears in a large hairdresser's shop, I could not but feel that it was labour thrown away which might have been much better employed. Mr. King, the gardener, is a very successful hybridiser of Begonias and Coleuses; and his house of Begonias, containing not only the very best varieties in commerce but his own seedlings, was a most attractive sight. I am no admirer of Coleuses, but one that he had which obtained a first-class certificate on Tuesday last (Pompador) was very effective. As Mr. King has all the best varieties I asked him to kindly furnish me with a list of what he considered the best Tuberous Begonias; this he has obligingly done, and I give it here as the opinion of a thoroughly well-informed and practical man:—*Singles*: Laurent Descours, Baronne Hruby, P. E. de Puydt, Leopold II., Massange de Louvrex, and Pearcei Vittelini, raised by Louis Van Houtte; Mrs. Howe (Laing);

Brilliant, I.e. Géant, Countess of Kingston, and Miss Briscoe, raised by Thibaut & Keteleer; Lelia (Fontaine), Rosea grandiflora (Lequin), Lady of the Lake (Rodger McClelland); Mentor, W. E. Gumbleton, and L'Abbe Froment, raised by Lemoine. *Doubles*: Comtesse Horace de Choiseuil, Lucie Lemoine, Gloire de Nancy, and W. E. Gumbleton, raised by Lemoine; Esther, raised by Bouchet.

This completed the tour of a tolerably busy day, one of the greatest treats of which was, however, the beautiful collection of paintings at Mr. Simpson's, comprising some fine specimens of the most celebrated modern painters, English and foreign, which Mr. Simpson possesses, and which I shall hope some day to have a more leisurely look over. There were other places—those of Mr. Wollaston, Mr. J. D. Pawle, and Mr. E. Pawle—which I hope also to see; but I have said enough to show, I think, that Reigate may well lay claim to taking a very foremost place in the records of horticulture.—D., *Dral.*

HINTS ON PROPAGATING.

A YEAR or so ago I told you of the difficulty I found in striking cuttings of a double Wallflower. Some time afterwards in the same year, border Picotee cuttings refused to root from a cause that appeared to throw light on the difficulty I had with the Wallflowers. The season was uncommonly wet, and the hand-glass over the Picotees having been taken off during rain, and replaced when it ceased, the soil appears to have become sour, and the majority of the cuttings failed to root. They were taken up and placed in a fresh compost, which was only kept moderately moist. In the following spring they began to grow, and ultimately made good plants. The Wallflower cuttings that had taken such an unaccountable time to root had been inserted in a shady situation under a bellglass kept closely covered in dry weather, and exposed during rain. Some that I inserted this spring in a sunny border and shaded with a piece of calico during bright sun have rooted satisfactorily.

I may mention in reference to this subject that a piece of *Euonymus*, having been thrown upon a weed heap in autumn, was covered there in a horizontal position. In March this was found to have callused, and it ultimately became a plant. Acting upon this hint, last autumn I made a mound in a north-west border, and stuck *Euonymus* and Wallflower cuttings in the sides of it horizontally. This mound was several times frozen through in the winter, yet by the middle of March most of the *Euonymus* and all the Wallflowers had callused, the latter indeed having produced roots. Both were then planted out and attended to for a while, and have become fine plants. It would be worth while to try cuttings of Hybrid Perpetual Roses in this way. The mound might be built up as the cuttings were placed in position.—A. BOYLE.

FLORAL DEFENCES.

(Continued from page 146.)

Glandular Hairs.—A very frequent mode of floral defence is constructed by the growth of hairs, each with a little glandular knob at the tip secreting a sticky fluid. These glandular hairs are so very common that they can hardly have escaped the notice of those field naturalists who care for flowers. Examples may be found in the Marsh Crepis, Alpine Circea, Mountain Barrenwort, Gooseberry, Linnaea, and many other flowers. But we must not infer that glandular hairs have no other value to the plant, or that they are always employed in keeping away disagreeable visitors. The Mountain St. John's wort is thickly beset with glandular hairs, though the plant secretes no honey, and therefore has none to guard. The sepals of some Poppies exhibit a forest of glandular hairs, but the sepals fall off when the flower opens.



Fig. 34.
Flowering
Gooseberry
(Kerner).

The sting of a Nettle is a tubular hair with a poison bag at its base; at the tip is a little knob, which breaks off on the slightest touch. The knob acts like a cork in keeping the poison from the air, and when it is broken off the pointed neck of the hair pierces the skin. When the leaf is crushed the tubular hair is compressed, and the poison-bag cannot discharge its irritating fluid.

Thorns, prickles, and sticky secretions are obviously more suited to be external defences, and we now come to the more delicate appliances for protection within the flower.

The common Foxglove has a floral defence which, though very simple, is effectual. The lower lobes of the bell on the inside are beset with stiff hairs, over which creeping insects and smaller honey-loving flies find it difficult to pass; but the humble-bee goes straight on, and even uses the hairs to push himself further in over the pearly surface which lines the bell. But why are the little bees excluded?

The four stamens and the pistil of the Foxglove are pressed closely against the inner surface of the bell, so closely that they are sometimes overlooked. A little bee that would not half fill the tube of the bell might pass under the anthers and get the honey without touching the pollen; but the humble-bee is so stout that it cannot help rubbing against the anthers and carrying off pollen. Now the Foxglove is one of those flowers in which the pollen is ripe before the pistil of the same flower is ready to receive it. This is one of Nature's contrivances to ensure cross-fertilisation; for if the pollen and the pistil were ripe at the same time, shut up as they are in the



Fig. 35.—*Cobaea scandens* (Kerner).

same tube, the pistil would be fertilised by the pollen from the same flower. So, as you may observe for yourselves, in the beautiful racemes of the Foxglove, the lower flowers come out first, and in some of them the anthers may already have ripened and withered when the pistil is ready for the pollen; whilst in the upper flowers the pollen is plentiful but the pistil scarcely to be seen at all, being not yet fully grown. Now the humble-bee begins with the lowest flower. He has come dusted with pollen from another Foxglove, and he finds the pistils of the lowest flowers ripe and ready to receive it. As he goes up from flower to flower he leaves pollen where it is



Fig. 36.—*Campanula barbata* (Kerner).

wanted till his coat is brushed fairly clean. When he reaches the higher flowers he finds no pistils, for they have not yet grown, but a profusion of pollen from the ripe anthers. Thus he gets his coat redusted with pollen and flies off to the lowest pistil-bearing flower of another like plant.

It is not difficult to see how the whole of this wondrous arrangement may rest upon the defensive efficiency of the little tuft of stiff hairs just within the bell of the Foxglove flower.

One of the most beautiful of our British wild flowers, the Buckbean or Bogbean, is protected in a similar way. The Yellow Iris or Water-flag has a similar defence.

Circlets of hair within the tube of the flower, and pointing inwards, are called by Dr. Kerner "weels," a name applied to wickerwork frames used for catching fish. Examples may be found in common

Speedwell and Red Valerian. It is almost impossible for small weak insects to pass the weels, but stronger insects have no difficulty in penetrating them; in fact, the weels may often serve as path-pointers to direct the proboscis of the welcome visitor to the spot where the drop of nectar lies concealed. Weels are to be found in many Gentians, Dead Nettle, Motherwort, Woundwort, Horehound, Verbena, Borage, many Lilies and Mallows, Cranberry, and very many other flowers common in fields and gardens.

We must not infer that the internal defences of flowers are always in the form of weels, otherwise we may be disappointed in looking for them where defences may be present under even more curious and interesting forms.

Sometimes the bases of the stamens are surrounded by tufts of hairs looking like little woolly muffs, as in *Cobæa scandens* represented in fig. 35.

In *Campanula barbata* the stamens are in the form of a figure of 5, the middle part being closely appressed round the pistil, and the bases of the filaments forming a receptacle for nectar, as shown in fig. 36.

In one or more species of *Pentstemon* four stamens are complete, whilst the fifth stamen is transformed into a kind of drop-bar completely excluding small insects from the nectar, which is, however, easily reached by the tongue of the bee. (See section of flower,



Fig. 37.—*Pentstemon* (Kerner).

fig. 37.) Older botanists have called this beautiful modification an aborted stamen. Such terms will have to be banished as utterly misleading.

(To be continued.)

CLAY CROSS HORTICULTURAL SOCIETY.

AUGUST 10TH.

THE twenty-third annual Exhibition of this Society was held on the above date. The weather was all that could be desired, and large numbers of people came to see what may be called the best Show in the county. The finances of the Society are in a prosperous condition, showing a surplus of £586, and if we may judge from the number of visitors who flocked to the Show the Society will add considerably to that balance. I will confine my remarks to the competition in the principal classes.

For a group of twenty plants, eight in bloom, six foliage plants and six Ferns, the prizes were as follows:—First prize £25, second £20, third £15, fourth £10, fifth £5. These liberal prizes brought out five competitors. The plants were arranged in the centre of a large circular tent 100 feet in diameter, each exhibitor having a section. They formed a very imposing group, the centre being filled with Palms and Tree Ferns on a raised platform, and the other plants sloped gradually to the margin. Messrs. E. Cole & Sons of Manchester were first, having *Erica Hartnellii*, *E. ampullacea vittata*, *E. Marnockiana*, very good; *E. Fairrieana*, *Allamanda nobilis*, *Dipladenia Brearleyana*, small but good; *Ixora coccinea*; *Bougainvillea glabra*, well bloomed; *Crotons Weismannii* and *Disraeli*, both well coloured; *Pritchardia pacifica*, *Latania borbonica*, *Kentia Fosteriana*, *Cycas revoluta*, *Gleichenia rupestris*, *G. Mendellii*, *G. flabellata*, *Cibotium regale*, and *Davallia Mooreana*. T. H. Oakes, Esq., Riddings House, Alfreton (Mr. Ward, gardener), was a very close second, the Judges being long in deciding on the merits of the two collections. Mr. Oakes' blooming plants being a long way ahead. They were *Erica Thomsonii*, *E. Aitoniana* and *E. Turnbullii*, very good; *Ixora Williamsii*, *Clerodendron Balfourianum*, *Statice profusa*, *Dipladenia amabilis*; a grand plant of *Kalosanthes coccinea* having upwards of four hundred trusses of bloom; *Croton Weismannii*; *C. angustifolius*, a large bush but deficient in colour; *Kentia Fosteriana*, *Latania borbonica*, *Cor-dyline indivisa*, *Dasyliirion glaucum*, *Dicksonia antarctica*, very good;

Adiantum farleyense, *Gleichenia rupestris glaucescens*, *G. dichotoma*, &c. Mr. Cypher of Cheltenham was a very good third, his best plants being *Erica Irbyana*, *E. venosa*, *Anthurium Schertzerianum*, *Gloriosa superba*, *Hæmanthus magnificus*, *Thrinax elegans*, *Crotons Weismannii*, *Disraeli*, and *majesticus*, all well coloured; *Gleichenia speluncæ*, *Davallia Mooreana*, *Adiantum trapeziforme*, &c. Mr. Dore of Clay Cross was fourth, and Mr. Haslam of Hardstaff was fifth with small plants compared with the preceding, but very good for amateurs.

In the class for six flowering plants Lady Ossington, Newark (Mr. Lyon, gardener), was first; and Mr. Reynolds, The Gardens, Ogston Hall, was first for three plants. For the corresponding class of foliage plants Mr. Lyon was again first for six, and Mr. Beard, nurseryman, Chesterfield, first for three. *Fuchsias*, *Pelargoniums*, *Begonias*, &c., were only fairly represented. There were about six lots of table plants staged, Mr. Ward being placed first with *Crotons Weismannii* and Lord Derby, *Dracæna marginata*, *Pandanus Veitchii*, *Cocos Weddelliana*, and *Aralia Veitchii gracillima*. Mr. Lyon was a good second, and Mr. Cypher third. Mr. Ward was also first for four Palms, Mr. Lyon second, and E. Cole & Sons third. In the group of plants arranged for effect Mr. Ward was first with a very bright lot composed of Palms, *Dracænas*, *Crotons*, Ferns, *Ixoras*, *Ericas*, &c. Mr. Webb, Kenham Hall, Newark, was second with very good plants, but arranged rather too thickly. Mr. Lyon third.

I must not omit to mention the group of plants sent from Chatsworth not for competition, which was very attractive and interesting, composed of *Peristeria elata*, *Disa grandiflora*, *Vanda tricolor insignis*, *Odontoglossum Alexandræ*, *Masdevallia Veitchii*, and other Orchids; *Ericas Fairrieana*, *Jacksonii*, *vestita*, *coccinea*, *Aitoniana*, *Turnbullii*, and *oblata*; *Amaryllis* in variety, Palms, *Crotons*, &c.

Cut Flowers.—There was not a very grand display in this class, Mr. Proctor taking first for eighteen and twelve Roses, Mr. Haslam for Dahlias, Mr. Ward for eighteen bunches of stove and greenhouse flowers. Bouquets were very good, Mr. Haslam being first, Mr. Dore second, and Mr. Cypher third. Mr. Cypher was first for wreath for ladies' head-dress.

Fruit was of good quality on the whole, Mr. Ward being first for a collection of eight dishes, Mr. Lyon second, and Mr. Webb third. Mr. Froggat, gardener, Wingeworth Hall, was first for black Grapes with small bunches of Gros Colman; Mr. Ward second with good coloured Hamburgs; and Mr. Lyon third. Mr. Ward and Mr. Froggat were equal first for white Grapes, the former with good Muscats, and the latter with very good examples of Buckland Sweetwater. Mr. Ward was first for Pines, Mr. Lyon second, both showing Queens. The other fruit classes were fairly represented, Messrs. Lyon, Webb, Ward, and Reynolds being the principal prizetakers.—G.

THE SHANKING OF GRAPES.

I NOTICED a short time since that you gave an opinion that shanking proceeded from improper root-action. This is also, I believe, the generally received opinion. From this I differ entirely. A Vine may be in first-rate condition, the roots, the wood, and foliage right, and yet the fruit will shank. Shanking proceeds from a fungus, which lights on the stem of the bunch. At first a tiny speck, it quickly grows, and when it surrounds the stem it cuts off all nutrition to the fruit below it, and it shrivels the stem and it dies. The upper part remains in full health and vigour, and the fruit grows and ripens as before. If it were from the roots being defective the whole bunch would go, which it does not. Stop mildew or fungus in your house, and there will be, I venture to say, no shanking. It is easy to verify what I advance by looking out sharply for the first appearance of the spot of fungus on the stem of the fruit bunch and watching its progress. When the shanking has taken place, cut off the bunch and magnify the part above the shanking. Now you will find the tissues are healthy and sound. If the damage came from the root this could not be the case, nor would the simple plan of cutting off the part that has shanked be of any avail, which it undoubtedly is. The best remedy for shanking in my opinion is sulphur on the pipes; but deal gently with it.—HARRISON WEIR, *Weirleigh*.

A PICTURESQUE GROTTTO.—It may be interesting to those readers who take a lively interest in ferneries, to know that a fernery grotto of a very novel character has been completed at Park Royal near Bradford, the country residence of Henry Yendall, Esq. This curious but beautifully constructed Fern grotto is of a special character. The interior arrangements are indeed marvellous, and what with rugged rockwork, fairy fountain, rivulet, and cascade, together with the beautiful Ferns and Mosses, makes it a very pleasant retreat from the drawing-room and billiard room. The fernery grotto is erected on the north side of the mansion in a very shady aspect, and before entering you pass under several rustic archways leading from the drawing room, which also adds much to the beautifying of the outer grounds, and answers as a kind of surprise before approaching the grotto. In short the fernery has so many enrichments both

inside and outside that my humble powers cannot here describe or enumerate the various forms which have been so artistically worked out.—A NATURALIST.

AURICULAS FROM SEED.

I HAVE read with a good deal of interest Mr. Rudd's excellent article, on page 135, on raising Auriculas from seed. I have often raised Auriculas from seed before, though not exactly in the way described by Mr. Rudd. What I should like Mr. Rudd to inform me is, how to raise Auriculas from chaff or pounded husks. I wrote for and received a packet of the seed which Mr. Rudd advertised for sale as being from best named varieties grown by Mr. Thomas Woodhead, and bearing that gentleman's signature as a guarantee of good faith. On opening the packet I found, instead of a dozen or two good seeds of Auricula, a quantity of chaff or broken husks, and three shrivelled-looking bodies which may be anything. Will Mr. Rudd be so good as to inform me through your pages how I am to treat this chaff, and what I may reasonably expect as the result of sowing his packet of "seed?"—FLORIST.

[We have received letters from other correspondents complaining of the contents of the packets referred to, but the above will be sufficient for affording Mr. Rudd the opportunity of making such an explanation as he deems necessary.—EDS.]

THE POTATO CROP.

ON August 12th the lifting of the late sorts of Potatoes was finished, and the entire crop of early, intermediate, and late varieties is safe in the store sheds, a fine, sound, and abundant crop—so abundant that it has not only filled the ordinary shed to overflowing, but three other sheds besides. Thus has been brought to a satisfactory conclusion one of the most critical and important operations of the year, for "A KITCHEN GARDENER" is undoubtedly right in his opinion that "the weather alone rules the state of the Potato crop," and all our care in the selection of seed and in every point of culture proves vain in adverse weather. So clear was this made last year, that one wonders all doubts upon the subject were not washed away by the almost incessant rain that made 1879 so disastrous for the "noble tuber."

Although much finer than last year, the present summer has been a stormy one, with weather so unsettled and showery that it was only by taking advantage of the intervals of fine weather the crop has been saved. No regular hours are kept while the lifting is going on, for we then work from daylight till dark, knowing full well from dearly bought experience that the first rain after growth ceases in the tuber brings disease in its train. Repeatedly has this stern fact been explained in the pages of the Journal, and by no argument or fanciful theory can it be explained away or set aside. To grow Potatoes to perfection free from disease, we require a climate that affords fine weather to bring the soil into good order for the planting; warm genial showers for the promotion of strong unchecked growth, followed by hot dry weather to ripen the tubers. It is rare for our climate to answer to these conditions; it does so occasionally, and it is only by watchfulness and care that the crop can be saved from the ravages of disease in ordinary seasons. On the whole the present year may be regarded as generally favourable, affording fully the requisite conditions for planting and growth; and although the weather has continued unsettled, yet there has been enough intervals of fine weather to enable everybody in this district to save the crop. With few exceptions the haulm and foliage was fresh and green at the time of lifting, and so long and crowded, much of it being a yard high, that a couple of men had to go before the diggers to clear it away, making an immense heap of it off 2 acres of late Potatoes which will be turned to account for manure.

I planted a sack of Scotch Champion by way of trial, but shall discard it. It is of the White Rock type, yielding plenty of large, coarse-looking, hollow-eyed tubers, which when cut are decidedly yellow—a sure indication of inferior quality. It is unworthy of culture among high-class Potatoes, and is one more example of the fallacy of such popular terms as "blight-proof" and "blight-resisting." Both Carters' and Suttons' Magnum Bonum have yielded a heavy crop of magnificent tubers, handsome, smooth, and full-eyed. They appear to be identical in every respect, are very white when cut, inducing the hope that one may be able to report favourably of its quality this season. The Victorias and Regents are as usual excellent; I have upwards of thirty sacks of them for cooking for the winter and spring supply. Of the second early varieties Early Rose appears to me to deserve a higher place than has hitherto been given it. Badly cooked it is decidedly inferior, being close, heavy, and watery; but

steamed or cooked in water and well dried afterwards in the saucepan placed near the fire, it breaks and is as mealy as can be wished. Its heavy-cropping property is well known. In this neighbourhood, and I believe generally, it is in high favour among the cottagers, who say it always affords them a crop when other sorts fail. I planted six bushels of it in light soil this year, from which I have dug fifty-six bushels of large tubers for cooking, besides a fair proportion of smaller for seed.—EDWARD LUCKHURST.

AUTUMN MANAGEMENT OF GRAPES.

UNDER the above heading on page 118 "R. P. B." describes his very simple mode of Grape culture, the results being such that satisfy him. This means that the produce is excellent, for nothing short of that would satisfy so good a cultivator. Your correspondent also refers to some vineries that he visited last year in which fine Grapes were hanging, but the surfaces of the borders were "swamped" in the afternoon when the houses were closed, with the object of keeping down red spider. This plan of closing the houses with moisture "R. P. B." evidently disapproves, for he says if good Grapes continue to be grown there it will be in spite of the moisture. "A KITCHEN GARDENER" strongly endorses all our friend has said about never syringing nor damping vineries at any time, and thus the practice that is adopted by a majority of the best cultivators is powerfully assailed.

I am as adverse to pampering Vines as any gardener, and have had the good fortune to grow Grapes that have satisfied myself and a rather critical employer, the Vines at the least being forty years of age. I rarely syringed them, but found it absolutely necessary to employ atmospheric moisture against red spider by damping the floors occasionally, and especially when closing the house. For twenty years previous to my charge the Vines were syringed as well as the floors damped, and the said Vines are now as strong and fruitful as ever. Even if this is "in spite" of the treatment they have received, it is certain that treatment has not injured them.

My experience leads me to the conclusion that it is easy to lay down a rule founded on circumstances too local and circumscribed to render that rule a safe one for general application. When I see splendid Grapes grown under the damping system I hesitate to say that the system is unsound, and I have grave doubts if the dry system were substituted for it in the same houses that the Vines would be so clean and the crops so good.

I have grown Grapes in one of the wettest counties in England, and also in the driest. In the former case damping was not necessary, in fact the atmosphere was generally too damp; in the latter damping was essential, as the air was extremely dry. In the moist and dull district there was no red spider, in the bright and dry locality the pest abounded. "R. P. B." does not, I think, practise Grape-growing in a district noted for its arid atmosphere and brilliant sun, neither presumably does "A KITCHEN GARDENER;" they advocate, therefore, a system of management that is perfectly applicable to their circumstances.

But the first-named correspondent says the soil of his district is one where red spider "ought" to be at home. If he were growing Grapes on the limestone formation with an annual rainfall of 18 to 20 inches (I have known it only a fraction over 16 inches) he would have no doubt of its presence. He would, during a hot summer, see Vines in the open air devoured with it, and fruit and forest trees prematurely defoliated by its attacks; and I have a lurking idea that before he had grown Grapes in such a locality for three years he would be glad of a little water for cooling the air of the vineries, and I should not be much surprised if he occasionally indulged in the luxury of "damping down."

That Vines are often over-pampered, over-syringed, and under-ventilated I cordially agree, and "R. P. B." is doing good service by advocating a more simple and rational mode of culture; but if persons of less experience than himself apply his drying plan during a dry summer in an already much overdry district the Vines in the houses will, I fear, soon be in the same condition as those on walls in the open air—namely, covered with red spider.

If I were the manager of those Vines alluded to as bearing such fine Grapes I should continue the practice that answers so well. They are the best Grapes in that neighbourhood, and the houses are very light and lofty. The same plan in another district with lower or less light structures might not, and probably would not, answer half so well. "Three of us," writes "R. P. B.," on the page above quoted, "were inspecting the magnificent crops of Grapes" in question, and I think I was—ONE OF THE TRIO.

A HYBRID DOCK.—There is now flowering in the Botanic Garden, Manchester, a Dock of considerable interest. It is a cross

between *Rumex maritimus* and *R. sanguineus*, and possesses in a striking degree characters of both parents. The leaves are slightly broader than those of *R. maritimus*, but by no means approaching those of *R. sanguineus* in width, but the red veins are quite as prominent. The perianth segments are not fringed as in *R. maritimus*; the flowers are less in number to each whorl, but more than in *R. sanguineus* with the less leafy panicle of that species. *R. maritimus* is the seed parent. The plant has been raised here, and it now remains to be seen whether it may not, like *R. maritimus*, prove to be of only biennial duration.—T. ENTWISTLE.

THE LIMES, GREENFORD GREEN.

IN the course of an "outing" it is not unusual to meet with a place which, though comparatively unknown, is really both well arranged and well kept, reflecting great credit upon its owner and also the gardener in charge, and such is the case in this instance. The Limes is the residence of T. D. Perkins, Esq., and is situated near Harrow. It is built on a gentle declivity, of which the most has been made by the landscape gardener, the chief points being a very ornamental terrace wall with perhaps rather too many vases, a good expanse of turf about which are dotted a number of plain beds—these at the time of my visit being very effectively planted—belts of shrubberies, and large beds filled with a very great variety of choice Conifers, flowering, deciduous, and ever-green shrubs, a piece of ornamental water, Fern walks, and other arrangements. A well-built ornamental conservatory adjoins the residence, but unfortunately it is of necessity kept much too dry for the well-being of many plants suitable for the decoration of conservatories. The plants most freely employed are Zonal Pelargoniums and Coleuses, and of these there are many of the newest varieties, which with a few other plants maintain a very gay appearance at all times.

The plant and fruit houses are situated in the kitchen garden, and are very substantially built span-roof structures. They are kept in excellent order, the central walk forming a very agreeable promenade. One range consists of seven houses, the central and largest one being devoted to Grape-growing, one to Peaches, and the remainder to Melons, Cucumbers, Tomatoes, and plants. All kinds of fruit were carrying heavy crops—in fact, too heavy, the Peaches and Nectarines in particular. They were very healthy and were forced moderately. The best Peaches were the Royal George, Early Alfred, and Barrington, and the favourite Nectarine is the Elruge. In the earliest vinery the bunches of Black Hamburgh and Madresfield Court Grapes were of good size, the berries large and fairly well coloured. The Muscats in the later house look very promising. The borders are principally inside, and the soil used for both Peaches and Grapes consists mainly of strong turfy loam; and this, coupled with the fact of their receiving frequent liberal supplies of water and liquid manure, may ensure a better "finish" to the crop than would otherwise be the case in lighter soil. The Melons in various stages of growth were very promising; the varieties preferred are Suttons' Earl of Beaconsfield and Gemmett's Hybrid. Tomatoes are grown in pots, the best being Hathaway's Excelsior; Nisbet's Victoria has the appearance of being more ornamental than serviceable.

The roof of one plant house was covered with two plants of *Maréchal Niel* Rose, which Mr. Abbott, the able gardener in charge, succeeds in flowering splendidly every season. His practice, which is worthy of more general imitation, is simply to cut the growth hard back to near the main branches, thereby securing a number of long strong shoots, which are really requisite for a heavy supply of bloom of this very popular Rose. The collection of plants comprised many well-grown examples of choice kinds. *Allamanda Hendersonii*, *Clerodendron Balfourianum*, *Stephanotis floribunda*, and *Rhynchospermum jasminoides* were well flowered, and a plant of *Medinilla magnifica* was carrying fourteen fine racemes of bloom. *Croton undulatum* of good size was well coloured, and is an excellent variety. I also noticed good plants of *Davallia Mooreana*, *Lomaria gibba*, and *Areca Verschaffeltii*.

In another range of expensive but not particularly well arranged houses there were numerous well-grown tuberous-rooted Begonias, some of the best named varieties of which were *Rodwellii*, *Coultonii*, and *Vesuvius*. *Gloxinias* were well grown, and also the very useful *Torenia Fournieri*. A collection of Orchids is being formed, those in flower—some of which were of good size—were *Aërides odorata purpurea*, *Oncidium flexuosum*, *Dendrobium moschatum*, *Cypripediums*, and others. *Epacris* and *Ericas* were well grown, and the *Chrysanthemums* were remarkably vigorous. A few good exhibition varieties of bronze Zonal Pelargoniums grown there are *The Shah*, *W. E. Gumbleton*, *Mrs. Quilter*, *Prince Arthur*, *Black Douglas*, *Celebes*, and *The Czar*. There was also a good selection of stage Pelargoniums. The best of these were

Rob Roy, *Dr. Masters*, *Queen Victoria*, *Chameleon*, *Humphrey*, *Angelina*, *Prince Leopold*, and *Captain Raikes*. *Bridal Bouquet* is a very useful perpetual-flowering variety.

The kitchen garden was well stocked with all kinds of vegetables. The soil is a very stiff clayey loam, very difficult to manage. The fruit are very properly arranged in a quarter, and not distributed throughout the garden, as is too often the case, to the detriment of both the vegetable and fruit crops.—W. IGGULDEN.

MEALY BUG ON VINES.

IN hope that my experience may benefit those whose Vines are infested with mealy bug, I will state as briefly as possible how in my case I got rid of the pest. When I arrived here in May, 1878, I found one of three vineries pretty much infested—and as I fortunately had no previous experience of it on Vines, I was not a little annoyed at it. The fruits were ready to thin, and during the process I had full opportunity of seeing the extent of the pest. Every spare moment was devoted to the hunting all through the summer, but spare moments were not very plentiful that season, for reasons I need not mention; and by October I found them inside at least a dozen bunches, while they were more or less over the whole house of fourteen Vines. As the leaves turned yellow I took them carefully off by hand and burned them, pruning the Vines immediately after, and burned the prunings as well. Shortly after I had the Vines carefully scraped of all loose bark, and all round the spurs brushed with a narrow hard brush; I then with a strong pocket lens examined the rods carefully from end to end. With a paste made of clay and Gishurst compound every crevice was filled, and the whole coated over in the usual way with this same mixture, to which I added a good quantity of sulphur, and well mixed the whole with hot water. I then painted all the wood and wires of the house with two coats of strong white lead and turpentine, filling all the eyes of the wires and every other suspicious hole with the paint as we went on. I fully thought that they would be extinct after all this, but not so. Next spring at thinning time I found a few, and to my dismay every time I looked I found them more or less all through the summer. Still I saw that I was gaining ground, and I repeated the same process of stripping the leaves, and, if possible, was more stringent with the painting of the wood and wires, from which, I fancied, they must have come this spring when heat was applied. I resumed the watching, and have continued it up till to-day without seeing a trace of one. The fruit has been ripe some time, and is partly cut; and as a proof that no damage was done by stripping the leaves, the quality is better this year than I have seen it, while the remainder of last year's crop was sent to table on May 1st in good condition. I may add that I consider the strong point in the battle was removing the leaves before the insects retired to winter quarters. I examined the prunings as we gathered them in a sheet, and found hundreds on them which would otherwise have found shelter inside the house.—A. C.

[The above letter, written in reply to the one which appears on page 138 of our last issue, is extracted from *The Gardener* of the present month. The plan of removing the bug-infested leaves from the Vines, instead of permitting them to fall and the insects to remain in the house, is a most sensible one. We are able to confirm the observation of "A. C." that after the foliage turns yellow no injury whatever results to the Vines by its removal.—EDS.]

SUCCESSIONAL CROPS.

UNDER this heading, on page 132, "A KITCHEN GARDENER" remarks that it is now "too late to plant greens to come in well in either autumn or winter," and according to his ideas such crops only as Turnips and Spinach should be put in; whereas your Clonmel correspondent (page 134) finds that "no time is better than the present" for planting Broccolis. Probably both may be correct according to their respective climates, but the two experiences have the appearance of being rather contradictory. "A KITCHEN GARDENER" may be practising in a late and cold district, or, what is more likely, is satisfied with nothing less than heavy crops, and in either case he is then correct. In this southern district planting is still going on among the cottagers' allotment and home gardens especially, and I shall have plenty of applicants for my surplus plants of Broccolis, Kale, and Savoys for some days to come, according as they have the opportunity of lifting Potatoes and replanting. I do not advise them or anyone else to crop their ground with nothing but Turnips, or Turnips and Spinach as the case may be, but to sow a requisite quantity of each, and to fill the rest of the space with greens and Broccoli, taking care to

keep them watered during dry weather till established, and afterwards give an occasional soaking with liquid manure. The crop obtained may be comparatively light, but it may also be very acceptable. Such was the case here last season, and may be again, as I intend putting out a number of strong Broccoli plants on ground now occupied by the very latest Potatoes. The plants being rather tall will be laid in rather thickly, and I shall be deceived if we do not obtain a lengthened supply of useful heads. One of the best crops for planting at the present time is that of June or July-sown Cabbage or Coleworts, as, should they not heart well, they will be found useful as greens during midwinter, and the same remark applies to late-planted Savoy. —W. I.



At a meeting of the General Committee of the NATIONAL ROSE SOCIETY, held on the 10th inst. at the Horticultural Club, it was decided that the invitation of the Sheffield Botanical Society to hold the Provincial Exhibition in that town in 1881 should be accepted.

— THE PELARGONIUM SOCIETY has entered on its seventh year, and the new schedule now in the printers' hands will show that the managing body have abundant confidence, for the prize list is considerably augmented. At the annual meeting held a few days since some changes were made in the executive, certain of the more active officers being desirous of rest, while others filled with zeal for the Society's welfare were found willing to take their places. The following is a list of the officers as now arranged:—President, Mr. W. B. Kellock; Vice-President, Mr. Thomas Moore; Honorary Treasurer, Mr. H. Little; Honorary Secretary, Mr. Shirley Hibberd. To the Executive Committee were added Dr. Denny, Dr. Masters, and Messrs. King and Windsor. The schedule for 1881 will be precisely the same as that for 1880, save that, as remarked above, the prizes will in many instances be of greater value. The Exhibition of next year will be held in connection with the Conversazione of the Royal Horticultural Society on the 28th and 29th of June.

— A CORRESPONDENT writing from Penzance, Cornwall, informs us that VERONICA LINDLEYANA is now in full bloom, and is very handsome with its pure white flowers densely packed in racemes. It is an evergreen shrub, about 4 feet high, and succeeds well there out of doors, though usually confined to a greenhouse.

— In a small plant stove at Holme Lacey is a specimen of ALLAMANDA SCHOTTII that is bearing hundreds of fine blooms. It was planted last April in a compost of loam, charcoal, and half-inch bones, and the plant was allowed to ramble over the roof unchecked.

— SOME time ago we directed attention to the adaptability of MADAME PLANTIER ROSE for forcing, its profusion of white flowers being highly acceptable during April and early May. We have since had evidence of the great hardiness of this Rose. In a village in the north of England standard Roses are grown in many cottage gardens, the villagers having obtained Briars and budded them with the best varieties that were readily obtainable from the gardens of the squire and clergyman. Nearly all the plants were killed by the severity of last winter, but the variety that appears to have passed unscathed is Madame Plantier. It is now the solitary Rose in more than one garden, and the standards are covered with large clusters of pure white flowers. It is also one of the very few Roses that escaped the severity of the arctic winter of 1860–1861. Madame Plantier is not a show Rose, but is admirably adapted for garden decoration.

— As an instance of the effects of the winter on forest trees, we have recently observed that nearly all the LOMBARDY POPLAR TREES are dead or dying in a district embracing at least two counties in the north of England. Grand specimens 60 feet high that two years ago were in excellent health are now nearly leafless, and many actually dead. Younger trees have also suffered almost to the same extent, and even the young stock of this tree in some nurseries that we have seen are in a most unsatisfactory condition. The frost following the mild season of 1879 so suddenly and severely is the cause of the damage, and it has also greatly injured many Oaks and Larches, the tops of the trees being dead, similarly to those of Apple trees in many places in the south.

— FOR the fourth time in England the old French ceremony of CROWNING THE ROSIÈRE was witnessed at the Alexandra Palace on Saturday last by thousands of spectators. This old and pretty custom was first instituted more than thirteen centuries ago, and its representation on the occasion in question was admirably carried out. It was no mere burlesque or vain show, but the proceedings were conducted with an earnestness that impressed the visitors with a sense of unmistakeable reality. The procession of children with banners, the loud pealing of the organ, with the appropriate hymns sung by the choir, and the impassioned harangue of the officiating priest, rendered the ceremony highly imposing. The Rose Queen, a young girl of modest demeanour, was selected because of her excellent character and her devotion to her home and her care of an aged parent, and was crowned by the Rev. Father Nugee, of St. Austin's Mission, Walworth, after which presents were given to her and her attendants. So warmly was the representation received by the vast crowd, that there can be little doubt that the festival will become an annual one at the Palace, which the spirited lessee, Mr. Willing, and his excellent manager, Mr. Jones, are making so popular and successful.

— TRAINED to a wall in that portion of the Royal Botanic Gardens, Kew, devoted to herbaceous plants, is a specimen of the peculiar CLEMATIS DAVIDIANA, which is now flowering very freely. The leaves are trifoliate, each leaflet being roundish and very dark green. The flowers are borne in dense axillary clusters, and strangely resemble the single flowers of a Hyacinth. The sepals are light blue, the lower portion being erect, so that the calyx appears to be tubular; the upper portion is reflexed.

— THE fine old climbing plant ECCREMOCARPUS SCABER is too well known to need description, but rarely have we seen it to better advantage than we observed it in one of the college gardens at Oxford a week or two ago. A plant was trained to a wall with a southerly aspect, and in company with Cobæa scandens was growing most vigorously, the clusters of rich orange-coloured flowers being produced in profusion, and, intermingled as they were with the purple flowers of the Cobæa, formed a charming covering for the wall. The Cobæa had been placed out in the spring, the position being sheltered and warm.

— NEW offices, seed warehouse, and a manager's residence are, says *The Builder*, being erected by Messrs. WEBB & SONS at their extensive seed establishment near Stourbridge. The former comprise, on the ground floor, an entrance hall and staircase, with general waiting-room attached; a ledger-office, 60 feet by 24 feet., with manager's office at one end; fireproof-room, cloak-room, and lavatory, and a private staircase to the upper floor, on which are arranged a suite of offices for the Messrs. Webb and heads of the several departments, together with sample-room, cashier's office, and a spacious reading-room and library for the use of the employés, which is approached from the entrance-hall by a staircase of polished pitch-pine. The seed warehouse is in continuation of

the present buildings, and is five storeys high, each floor having an open space of 88 feet by 40 feet. Steam lifts and staircases are provided, together with offices for warehousemen, &c. The communications betwixt the new and present warehouses are to be closed by fireproof doors. Speaking-tubes are provided to all the offices, and the telephone is to connect them with the seed warehouses, which are on the opposite side of the courtyard. The buildings are being carried out by Mr. Lovatt from designs prepared by Mr. J. R. Veall, architect, Wolverhampton. The materials used are red pressed bricks, with Hollington stone dressings. The cost will be nearly £7000.

— ON the 10th inst. Mr. Alfred Sutton and Mr. M. J. Sutton, of the firm of MESSRS. SUTTON & SONS of Reading, accompanied their employes by special train to Portsmouth. As it is now a matter of difficulty on account of the size of the party (400) to find a suitable place for all to dine together, so in addition to the railway and boat tickets Messrs. Sutton gave to each man 5s. to provide himself with refreshments. Each married man had also a ticket given him for his wife. A number of the tourists passed over to the Isle of Wight, and all greatly enjoyed the day of change and wholesome recreation.

— MR. R. KIPPIST held the post of Librarian and not Secretary to the Linnæan Society, as was inadvertently stated last week on page 141 in a paragraph referring to his retirement.

— WE cite the following from "The Gardener," relative to the value of HALES' EARLY PEACH for forcing:—"The first week in June we received from Chatsworth a ripe fruit of this Peach, the forcing of which was commenced on the 28th of January. A sample of Elruge Nectarine, from a tree growing beside Hales' Early Peach, was just stoned, but not commenced to swell a second time. Royal George Peaches, started in the early part of November, were fourteen days behind Hales' Early, started 28th November. There are still earlier Peaches than Hales', but they are much less, and not so fine in other respects."

— THE same paper contains the following note on the DUKE OF BUCCLEUCH GRAPE—"Those who would like to see what can be done with this magnificent Grape should visit Tweed Vineyard and Drumlanrig, before the crops of it at these places have been encroached on with the knife. Mr. William Thomson informs us that the side of his corridor occupied by the Duke has the worst border of any in the Vineyard, and the treatment is nothing different from what he usually practises in the case of Black Hamburgh. Here there is an even clean crop from top to bottom, on spurs and young wood alike. Mr. Thomson reckons his weight of it at half a ton; and he always gets a shilling or two more per pound for the Duke than for any other Grape he sends to Covent Garden at the same season. At Drumlanrig the whole of a sunken, semi-pit-like, span-roofed house, running east and west, is devoted to it. The effect of such enormous berries near the eyes is unique. There is scarcely a spotted berry in the house. Mr. D. Thomson says the border is very indifferent, having been made a month or two after he went to Drumlanrig, to produce a temporary crop of Grapes. Three years ago four grafts of the Duke were put in, and last year all others were cut away and the house filled from these grafts. The only difference Mr. Thomson makes in the treatment of the Duke is, that he gives a little more heat when it is in bloom, and, as a rule, all through gives more air. All who have seen these two crops of the Duke cannot but regret that so magnificent a Grape is so often met with in a bad state; and it is to be hoped that gradually it may take a more popular position in all Grape-growing establishments."

— A NEAT dwarf species of St. John's Wort is *HYPERICUM EMPETRIFOLIUM*, which rarely exceeds 9 inches or a foot in height.

The leaves are linear, about half an inch in length, and closely set on the stem. The flowers are small but very numerous, and of a bright yellow hue, each plant of moderate size forming a dense mass of colour that appears to excellent advantage among the numerous plants now flowering in a border of well-selected herbaceous plants. We recently saw a number of handsome little specimens in a suburban garden, where it is greatly prized.

— AN Ipswich correspondent writes us that the POTATO DISEASE is making serious havoc in that part of Suffolk. The progress of the disease was especially noticeable during the first week of August. Both early and late varieties are affected.

— A REMARKABLY distinct species of *Pentstemon* is now flowering at Kew—viz., *PENTSTEMON MURRAYANUM*, which rises to the height of nearly 7 feet, and bears in the axils of the glaucous stem-clasping or perfoliate leaves numerous tubular red or scarlet flowers. The peculiar form of the leaves, the bright colour of the flowers, and the extraordinary height of the stems render it very noticeable.

— IN the same garden *GUNNERA SCABRA* is now in most vigorous health, the leaves being of enormous size. The exceptionally fine clump at the upper end of the herbaceous grounds is now most conspicuous, and indicates the value of the plant for prominent positions in gardens.

— AN attractive plant is *NIGELLA HISPANICA*, and one of the best of its genus. The flowers are comparatively large, the sepals being roundish in form and of a dark purplish blue tint, which contrasts curiously with the reddish stamens and pistils. The petals, as in other *Nigellas*, are of peculiar form, but small and inconspicuous. The leaves and bracts are divided into numerous segments, but not so finely as in *Nigella damascena*, which is popularly known as Love-in-a-Mist or Love-in-a-Puzzle, both appellations referring to the involucre that is immediately below the flower. Another pretty species is *N. sativa* with very pale blue or white flowers, but it is inferior in decorative value to the two first named. They all flower abundantly during July and the present month.

— WASPS *v.* WALL FRUIT.—The advice in "Work for the Week," August 5th, 1880, for suspending bottles near the places the wasps frequent, leads me to mention the experience of two years, which was attended by great success. About a score bottles, half filled with a well-sweetened mixture of treacle and beer, were placed on a pyramid Pear tree in the middle of my large garden at a considerable distance from an orchard house and walls. Wasps and flies were attracted to the bottles, the contents of which were sought in preference to wall fruit.—J. J. T., *Herts.*

KALOSANTHES COCCINEA.

THIS old inhabitant of our greenhouses is not cultivated in such large numbers as it really deserves to be. When well grown it would be difficult to find a more lovely flowering plant than the old *Kalosanthus*. It is suitable for market purposes, for room decoration, as well as for the ornamentation of the conservatory, and lastly as an exhibition plant it is very effective. Its adaptability to bloom from June to the end of August, or later if retarded in its early stages, renders it more worthy of attention, especially when we consider *Pelargoniums* of the French and fancy type and *Calceolarias* are over, and *Heaths* are on the wane. At this time there is frequently a scarcity of flowering plants for the conservatory. In addition to the individual beauty of each truss it possesses a sweet fragrance.

Propagation is easily effected at any season of the year, either during the spring or at the present time; the latter in all probability is best as the plants go out of flower. Any shoots that have not produced a truss of bloom this year should be taken off and rooted, either singly in pots 3 inches in diameter or four or five in 5-inch pots, or more in larger sizes if required. Young shoots 4 inches long are preferable for cuttings, as they grow more freely

and make plants more quickly than the stems, although these will do providing a sufficient stock cannot be obtained otherwise. A small portion of sand should be placed at the base of each cutting; and if wanted to bloom next year the cuttings can be inserted in the pots they are intended to bloom in, while those for the following year's supply can be rooted in 3-inch pots, in which they will stand the winter and can in early spring be transferred into pots of a larger size. After the cuttings are inserted in pots they should be placed upon a shelf or in any position where they can be kept close for a short time.

The compost should consist of rich fibry loam, a seventh of manure, and plenty of coarse sand to keep the soil open. For all ordinary decorative purposes 4, 6, and 8-inch pots are large enough, but for specimens larger pots are required. The pots should be carefully drained. A layer of moss or a portion of the roughest of the compost should be placed over the drainage, and the soil should be pressed moderately firm. It is surprising what fine healthy plants can be produced in comparatively small pots. The roots should not be disturbed when potting.

Watering should be done carefully after the first potting, but when the roots have taken well to the new soil liberal applications can be given them, with occasional supplies of liquid manure and clear soot water. During the winter water must be judiciously applied, sufficient only being given to keep the plants from shrivelling, at the same time no attempt should be made to dry the plants until they lose their lower foliage, as is practised by some cultivators in order to induce them to flower. This severe drying is a great detriment to the plants both as regards appearance and the size of the flower truss.

The treatment during summer is simple when potting and watering are properly carried out. The plants will require a cool frame in the spring to protect them from frost and cold winds, ventilating freely on all favourable occasions. During June the plants can be placed outside in a sheltered position where winds will not injure them. To prevent the shoots being broken by the wind they may be secured to two or three stakes placed round the sides of the pots. By placing the plants outside the growth is rendered firm and short and becomes well ripened. They are sure to bloom well without being subject to the ordeal of drying during winter. As autumn approaches and there is fear of frost the plants must be placed in their winter quarters, where frost can be excluded, and the plants have a cool airy temperature and be placed close to the glass.

When exhibition plants are required it is necessary to take the points out of the young plants when rooted, or at the latest when 6 inches in length. It will be found that a young shoot will be produced from the base of nearly every leaf if strong cuttings are employed in the first place. These should again be stopped in spring, and so on through the summer, but not later than the early part of August. If rooted at once and kept in frames during summer, and stopping the shoots, dwarf plants about 1 foot high and the same distance through may be produced in twelve months having from thirty to forty shoots upon them. These are by no means in a condition capable of blooming the following year. Plants for exhibition purposes should be grown on from cuttings to the desired size before blooming them. Two sets of plants will be required to produce a supply of bloom each year unless small plants only are in request, which can be produced from the few shoots that fail to flower. The quantity of shoots that miss flowering will entirely depend upon the ripened condition of the plants and the time the shoots have had to develope. Few flowerless will be found from properly prepared plants.

Kalosanthes must have one clear season's growth, after which nearly every shoot will bloom. Plants that have bloomed should be cut back and kept close for a short time, so as to give them a chance of breaking again before winter.—WM. BARDNEY.

AUTUMN TREATMENT OF RASPBERRIES.

AMONGST small fruits none do better here than Raspberries. The soil and climate seem to suit them and they grow freely, but probably it is our mode of treating the canes that induces them to fruit so freely. I have just finished gathering the fruit. The old canes are bare, and the young canes form quite a hedge on each side of them. There are double the number of young canes that will be wanted or can be laid-in against the fence-like wires to which they are trained. To allow all to mature would be depriving the fruiting canes of much of their strength, and the mass the old and young canes make together would prevent many of them from ripening so well as they should. To secure this thoroughly, and allow the canes which will produce next year's crop to develope and ripen to the fullest extent, I have cut

away every old cane and all the small young canes which are not wanted for fruiting purposes, and the young fruiting canes are tied into their fruiting positions fully exposed to air and sun on all sides, and under this treatment I have no fear of their being killed by the next severe winter, or failing to produce a crop next season, however unfavourable the weather may be. Thoroughly ripened wood in all fruit-producing plants is always certain to reduce the influences of injurious weather to a minimum.—J. MUIR, Margam.

THE PHYLLOXERA.

THIS, the most terrible of all pests to which the Vine is subject, has not, fortunately, wrought anything like the destruction to Vines in this country that has been experienced in the vineyards of the Continent, where whole districts have been devastated by the scourge, and many industrious cultivators have been ruined. But that the Phylloxera does exist in England I have recently had undoubted proof, and the subject is adverted to now for the purpose of urging upon gardeners and others who are planting Vines the importance of rejecting those that show symptoms of being attacked by this most destructive insect, and to enable them to detect its presence on either roots or foliage.

The roots and foliage represented in the engravings (figs. 39 and 40) are truthful representations of the attacks of this dreaded insect in an English vineyard. As will be seen, the symptoms are so distinct from all other affections of the Vine that they cannot be mistaken, and all who have Vines that refuse to thrive and which have the



Fig. 38.—Phylloxera vastatrix.

Female specimens and their eggs. *a*, Antennae; *b*, horus or suckers; *c*, egg plainly visible in the body of the insect; *f*, winged form of the insect. All magnified.

foliage and roots similarly affected, may conclude that they are the victims of the greatest misfortune that can befall them as cultivators.

The Vines from which the specimens were taken are in charge of one of the ablest of British gardeners, whose name and habitation I am not at liberty to name at present, but I can give an assurance that so far as it is in the power of man to prevent it that the pest will not be permitted to spread, for the most thorough measures will be taken to utterly destroy it.

The Vines affected were planted three years ago in a very large house, and had the gardener been acquainted with the signs of the presence of the insects on the roots he would not now have to combat an attack so serious. He had seen engravings of the insects magnified (fig. 38), but had no idea of the appearance of the roots when attacked by them.

In one house the Vines were growing splendidly, in the other they made little or no progress. The borders in both structures were precisely the same, and the general treatment identical. The sickly Vines were, as the gardener said, "a puzzle," and he could "not make out what was amiss." Having travelled a little further than my friend and seen Phylloxera-affected Vines, my suspicions were aroused, and roots were sought for and found. The moment I saw them I was satisfied of their condition, and after holding a portion in the sun and under a lens for five minutes the heat made the insects uncomfortable, and at least a dozen of them on a portion of root only an inch in length began kicking and crawling, and the case was settled beyond dispute. The Vines were then searched for the leaf form of the insect, and dozens of leaves—the young lateral growths—were found affected precisely in the manner shown in the figure.

Much needless fear and anxiety have been experienced by many lest their Vines, which have not made satisfactory progress, were attacked by this destructive and, for a long time, hidden enemy, and it would not be difficult to point out instances where Vines have been destroyed on the assumption that they were Phylloxera-stricken when nothing of the kind was the case; but whenever the leaves are covered with galls in the manner indicated, and the extremities of the roots—the spongioles—assume a knotted form, or more properly become covered with nodosities, it may be at once admitted that the much-dreaded insect is present, and the work of

extermination cannot be commenced too promptly nor carried out too thoroughly.

In the instance under notice the Vines are fortunately in inside borders, and the attack also commenced in the centre of the house, the two end Vines not being nearly so much affected as the others. There is good hope, therefore, that the discovery was made just in time to prevent the Vines in half a dozen other large houses in the same garden being affected and speedily ruined.

The description and habits of the *Phylloxera vastatrix* by M. Planchon are as follows:—"Its best known form is that in which no trace of wings can be discovered. When the insect is about to lay its eggs (that is, in the adult female state), it forms a small ovoid mass, having its inferior surface flattened, its dorsal surface convex, being surrounded by a kind of fillet, which is very narrow when it touches the thoracic part of its body, which, formed by five rather indistinct rings, is hardly separated from its abdominal part of seven rings.

"Six rows of small blunt tubercles form a slight protuberance on the thoracic segments, and are found very faintly marked on the

abdominal segments. The head is always concealed by the anterior protuberance of the buckler; the antennæ are almost always inactive. The abdomen, often short and contracted, becomes elongated towards laying time, and there can be easily seen one, two, or sometimes three eggs, in a more or less mature state.

"The egg sometimes retains its yellow colour for one, two, or three days after it has been laid; more often, however, it changes to a dull grey hue. From five to eight days generally elapse before it is hatched. The duration of this period depends a good deal on the temperature. The quantity of eggs, and the rapidity with which they are produced, are probably determined by a variety of circumstances—the health of the insect, the quantity of nourishment it is able to obtain, the weather, and perhaps other causes. A female which had produced six eggs at 8 o'clock A.M. on the 20th of August had fifteen on the 21st at 4 P.M.—that is, she laid nine in thirty-two hours. Other females lay one, two, or three eggs in twenty-four hours. The maximum quantity is thirty in five days. The eggs are generally piled up near the mother without any apparent order, but she sometimes changes her position so as to



Fig. 39.—THE PHYLLOXERA ON VINE ROOTS.



Fig. 40.—THE PHYLLOXERA ON VINE LEAF.

scatter them all around her. They have a smooth surface, and adhere lightly to each other by means of a slimy matter which attaches to them.

"Hatching takes place through an irregular and often lateral rent in the egg, the empty and crumpled membrane being found among eggs in different stages of hatching."

The following interesting remarks on the genus *Phylloxera* by a skilled entomologist, "J. R. S. C.," have also been published in the Journal:—

"The genus *Phylloxera*, represented by such species as *P. coccinea*, *vastatrix*, and *quercus*, presents such strange anomalies that our entomological leaders are puzzled as to its place in this order. Like the scale insects, the females are oviparous, but the parents do not die off to furnish a protective coating for the young. In several instances broods in various stages of growth reside within galls formed on the roots or branches of the plants they attack, the *Phylloxera* resembling the aphides, in their succession of summer broods consisting only of females. Excellent, therefore, as are some of the remedies proposed, they have this awkward circumstance against them, that owing to the secluded habits of the majority of the *Phylloxera*, the killing agent cannot be placed near enough to them. As to their rapid multiplication, on the Oak leaves during July or August there may be observed, where the insects occur, a dozen or more of females upon a single leaf, each surrounded by her

batch of more than a hundred eggs, regularly arranged in circles. Some very startling statements have been published about these *Phylloxera* by the French naturalists, and not all of these have been verified as yet by sufficient observations. But it seems pretty well ascertained that the Vine-eaters, under certain conditions of their life, migrate to the Oak, and the reverse operation also occurs. Then the root-infesting *Phylloxera*, which are for many generations entirely subterranean in habit, are continued through a limited number of years by wingless females, until they die out, new colonies of the *Phylloxera* being propagated by the winged specimens bred from the leaves. And if we could credit M. Balbiani, that some females only deposit a single egg at the period when the winged development occurs (though another naturalist deems this a pupa), we should deem the *Phylloxera* pre-eminent amongst their brethren on account of their peculiarities."

If the species that attacks the Vine is proved as stated also to migrate to the Oak, the question, serious enough before, becomes more serious still, as the difficulty of stamping out the pest must be much greater than if its attacks were limited to the Vine.

After the pest has been extirpated from the vinery referred to the means that have been adopted will be published in the Journal, with some experiments with the insect that will prove interesting and possibly instructive. In the meantime all persons when planting Vines should closely examine the roots, especially the

extremities of the fibres, and if there is any suspicious swellings, any small tubercles on them, such Vines should be promptly destroyed.—J. WRIGHT.

NATIONAL CARNATION AND PICOTEE SOCIETY.

(NORTHERN SECTION).

THIS Society held their second Exhibition for this season on Saturday, the 14th inst., in the large Exhibition Building of the Botanical Gardens, Manchester, kindly lent by the Council. Although many of the exhibitors were considerably past their best, yet taken as a whole the Exhibition was very fine, whilst never at any former exhibition were so many good seedlings exhibited, the winning stands of Carnations in Class A containing a large proportion. Amongst the best of the seedlings was a scarlet bizarre of good quality, superb in colouring, exhibited by Mr. B. Simonite, and in our opinion either this or a beautiful flower of Admiral Curzon ought to have been awarded first honours. Mr. B. Simonite exhibited another fine s.b. Joseph Crossland, large, with a beautiful white, and strongly marked. In crimson bizzarres Master Fred was a splendid flower, large, with very bold markings, high in colour—a true crimson bizarre. The only fault we could find in the flower was the large or double guard petal, which must in all case detract somewhat from the beauty of a flower. It is, however, perfectly flat and free from the ridging which generally prevails in this kind of petal—in our opinion a very great fault. Other crimsones were Wm. Skirving, and two unnamed seedlings exhibited by Messrs. Gorton and Rudd. In pink and purples Mr. Gorton exhibited a splendid flower, whilst in purple flakes Mr. Rudd exhibited two, both good. In rose flakes fully a dozen new varieties were exhibited, all good; this class appears to contain a larger number of fine forms than any other, as many of them fully equal the present named sorts. One of the most noticeable was exhibited by Mr. Gorton, and which appears to be intermediate between a scarlet and rose flake, but which as it ages becomes a deep rose. Of older varieties Admiral Curzon and Rifleman were fine, whilst in purple flakes Dr. Foster was extra fine, large, and pure.

Picotees generally were not so fine as the Carnations; the reason is that those whose bloom was over had only soiled flowers, whilst being somewhat later (about a week) in blooming, those exhibitors whose situations were late were unable in many cases to exhibit in the stands to advantage; there was also an absence of good seedlings, which always make a stand look brighter. In reds the best were Lord Valentia, very neat and pure in colour; in lights Violet Douglas. Purples had Zerlina and Alliance, fine; in lights Minnie and Ann Lord were the best. Heavy roses had Lady Louisa and Miss Horner, fine; whilst in lights Miss Wood and Mrs. Allcroft were extra fine. The collections of single blooms were very large, and I do not recollect at any time for some years back seeing a larger number of single specimens, or a task that tested the capabilities of the Judges more. Mr. Dodwell was to the fore, and as usual did good service, and was sincerely congratulated by all on his improved health. The day was brilliant, and added greatly to the enjoyment of all concerned. The following is a list of the prizetakers and the principal varieties in each class:—

Class A, Twelve Carnations, open to all.—First, Mr. R. Gorton, Eccles, Manchester, with Wm. Skirving, fine petal, c.b.; James Cheetham, s.f.; Earl of Wilton, p.f.; Seedling, r.f.; Seedling, r.f.; Seedling, c.b.; Admiral Curzon, s.b.; Rifleman, c.b., extra fine; Seedling p. & p.b., a fine large flower; Seedling, r.f., very high in colour, intermediate between a rose and scarlet flake; Seedling, c.b., neat and good; Seedling, r.f. Second, Mr. George Rudd, Undercliffe, Bradford, Yorks, with Mars, s.b.; Seedling, r.f.; Seedling, p.f., very good; Seedling, r.f., fine in colour; Seedling, p.f., very pure in colour; Dan Godfrey, s.f.; Milton, c.b., extra good; Sir Charles Napier, s.b., extra large; Admiral Curzon, s.b., best flower in the stand; Seedling, c.b.; Seedling, r.f.; James Taylor, p. and p.b. Third, Mr. B. Simonite, Rough Bank, Sheffield, Mayor of Nottingham, p.f., extra large; Albion's Pride, c.b.; Sybil, r.f., large and good; Sportsman, s.f., fine; Seedling, r.f.; Seedling, s.b., large; James Douglas, p.f.; James Taylor, p. and p.b.; Joseph Crossland, s.b., extra fine; Mr. Battersby, s.f., extra large; Seedling, s.b., best. Fourth, Mr. J. Beswick, Middleton, Manchester. Fifth, Mr. E. Booth, Mobberly, Cheshire. Sixth, Mr. Jon. Booth, Failsworth, Manchester.

Class B, Twelve Picotees, dissimilar, open to all.—First, Mr. John Beswick, with *Miss Wood, medium rose; *Lord Valentia, h.r.; *Miss Horner, h. rose; Mary, l.p.; *Zerlina, h.p.; *Mrs. Allcroft, l. rose; *Ann Lord, l.p.; *Mrs. Lord, h. rose; *Minnie, l.p.; Edith D'Ombra, h. rose; *Violet Douglas, l.r.; Mrs. Harland, m.p. Those marked * were extra fine and large. Second, Mr. Jonathan Booth with Brunette, h.r.; Mary, l.p.; Miss Wood, m. rose; Zerlina, h.p.; Mrs. Summers, h.p.; Mrs. Allcroft, l. rose; John Smith, h.r.; Minnie, l.p.; Miss Horner, h. rose; William Summers, m.r.; Mrs. Lord, h. rose; Medina, h.p. Third, Mr. E. Booth, Mobberly, with J. B. Bryant, h.r.; Ethel, l. rose; Mrs. Bowers, l.r.; Brunette, h.r.; Zerlina, h.p.; Master Norman, h.r.; Mary, l.p.; Miss Lee, h. rose; Edith D'Ombra, h. rose; Minnie, l.p.; Mrs. Allcroft, l. rose; Medina, h.p. Fourth, Mr. J. Sharp, Perry Bar, Birmingham. Fifth, Mr. Geo. Rudd. Sixth, Mr. B. Simonite.

Class C, Twelve Carnations, nine dissimilar varieties, open to growers of four hundred pairs or less.—First, Mr. Thomas Mellor, Ashton-under-Lyne, with Sibyl, r.f.; James Douglas, p.f.; Crista-

galli, r.f.; J. Taylor, p. and p.b.; Sarah Payne, p. and p.b.; Admiral Curzon, s.b.; Dan Godfrey, s.f.; Sibyl, r.f.; Ivanhoe, s.f.; Juno, p.f.; Rifleman, c.b.; Lord Rancilffe, s.b. Second, Mr. Wm. Taylor, Middleton, Manchester, with Crista-galli, r.f.; William IV., s.f.; Jas. Taylor, p. and p.b.; Crista-galli, r.f.; Lovely Ann, r.f.; Lady Peel, p.f.; Admiral Curzon, s.b.; Lord Milton, c.b.; Admiral Curzon, s.b.; Clipper, s.f.; James Merryweather, r.f.; Annihilator, s.f. Third, Mr. John Fletcher, North Brierley, near Bradford, with Mars, s.b.; Seedling, r.f.; Mars, s.b.; Seedling, r.f.; Sibyl, r.f.; Sir C. Napier, s.b.; Seedling, r.f.; Sir C. Napier, s.b.; Seedling, c.b.; Juno, p.f.; Dan Godfrey, s.f.; Seedling, p.f. Fourth, Mr. Jas. Sharp. Fifth, Mr. Joseph Chadwick, Dukinfield, near Manchester. Sixth, Mr. Slack, Chesterfield.

Class D, Twelve Picotees, nine at least dissimilar, open to growers of four hundred pairs or less.—First, Mr. T. Mellor, Ashton-under-Lyne, with Ann Lord, l.p.; Norfolk Beauty, h.p.; Mary, l.p.; Mrs. Lord, h. rose; Miss Wood, l. rose; Violet Douglas, l.r.; Miss Horner, h. rose; Mr. Norman, h.p.; Rosy Queen, h. rose; J. B. Bryant, h.r.; Mary, l.p.; Bertha, l. rose. Second, Mr. R. Gorton, with J. B. Bryant, h.r.; Mary, l.p.; Mrs. Nichol, l. rose; Alliance, h.p.; Lady Louisa, h. rose; Mrs. Nichol, l. rose; Seedling 143, l.p.; Purity, h. rose; Zerlina, h.p.; Seedling 143, l.p.; Mary, l.p.; Mrs. Hannaford, l.p. Third, Mr. Wm. Taylor. Fourth, Mr. J. Chadwick. Fifth, Mr. John Fletcher.

Class E, Six Carnations, dissimilar, open to growers of 150 pairs or less.—First prize, Mr. S. Barlow, Stakehill House, Castleton, Manchester, with Sportsman, s.f.; Jas. Taylor, p. and p.b.; J. D. Hex-tall, c.b.; Jas. Merryweather, r.f.; Squire Meynell, p.f.; Admiral Curzon, s.f.

Class F, Six Picotees, dissimilar, open to growers of 150 pairs or less.—First, Mr. S. Barlow, Alice, m.p.; Fanny Helen, h. rose; Edith Dombra, h. rose; Ann Lord, l.p.; Mary, l.p.; John Smith, h.r. Second, Mr. Slack, with Mary, l.p.; Her Majesty, l.p.; Mrs. Auckland, h.p.; Mrs. Payne, h. rose; T. Williams, l.r., extra fine; J. B. Bryant, h.r. Third, Mr. James Sharp. Special prize for twelve selfs, yellows or other varieties.—Mr. R. Gorton first, and Mr. S. Barlow second.

Class G, Carnations, single blooms.—*Scarlet Bizzarres*.—First and fourth, Mr. J. Beswick with Admiral Curzon; Mr. Miller third and Mr. William Taylor being sixth with the same variety; second, Mr. J. Fletcher with Mars; and Mr. B. Simonite fifth with a seedling. *Crimson Bizzarres*.—Mr. Hewitt, Chesterfield, first, second, and third with Master Fred; Mr. J. Booth fourth with Lord Goderich; Mr. J. Chadwick fifth with Lord Milton; sixth, Mr. J. Fletcher with a seedling. *Pink and Purple Bizzarres*.—Mr. J. Beswick first with Falconbridge; Mr. Hewitt second, fifth, and sixth with Sir G. Wolseley; and Mr. T. Mellor third and fourth with Falconbridge. *Scarlet Flakes*.—Mr. J. Booth first with Clipper; Mr. Taylor third with the same variety and sixth with William IV.; Mr. B. Simonite second with Sportsman; Mr. J. Sharp fourth with Lady Curzon; Mr. R. Lord, Todmorden, fifth with Annihilator. *Rose Flakes*.—Mr. J. Beswick with Jas. Merryweather; Mr. George Rudd second with a seedling; Mr. R. Lord third with Sibyl; Mr. Fletcher fifth with the same variety; Mr. R. Lord fourth with Mrs. Dodwell; Mr. R. Gorton sixth with Crista-galli. *Purple Flakes*.—Mr. R. Lord first, second, third, fourth, and sixth with Dr. Foster; Mr. J. Beswick fifth with Mayor of Nottingham. The premier Carnation was Master Fred, shown by Mr. Hewitt of Chesterfield.

PICOTEES.—*Heavy-edged Red*.—Mr. J. Booth first with J. B. Bryant; Mr. J. Beswick second, third, and fifth with Lord Valentia; Mr. G. Rudd fourth with Master Norman; Mr. E. Booth sixth with Brunette. *Light-edged Red*.—Mr. B. Simonite first with a seedling; Mr. R. Lord second and fifth with Clara; Mr. J. Beswick third with Violet Douglas; Mr. T. Mellor fourth with the same variety; Mr. T. Mellor sixth with Violet Douglas. *Heavy-edged Purple*.—Mr. E. Booth first with Zerlina; Mr. J. Chadwick second with Alliance; Mr. B. Simonite third with Zerlina and fourth with Mrs. Niven; Mr. Chadwick fifth and sixth with Miss Chadwick. *Light-edged Purple*.—Mr. T. Mellor first with Ann Lord; Mr. J. Beswick second and fifth with Minnie; Mr. R. Gorton third with the same variety; Mr. E. Booth fourth with the same variety; and Mr. B. Simonite sixth with Mary. *Heavy-edged Rose or Salmon*.—Mr. R. Lord first, second, third, fourth, and fifth with Miss Horner; Mr. Slack sixth with Mrs. Payne. *Light-edged Rose or Salmon*.—Mr. R. Lord first and second with Miss Wood; Mr. J. Beswick third and Mr. R. Lord fourth and fifth with the same variety; Mr. E. Booth sixth with Mrs. Allcroft. The premier Picotee was Miss Horner, shown by Mr. Robert Lord of Todmorden.

POTATOES IN WEST CORNWALL.—Early Potatoes have turned out a very fair crop this season and quite free from disease. The variety principally grown is Myatt's Ashleaf. Paterson's Victoria is also grown to some extent. The former is better suited to this locality than any other, it being a good early cropper, but if not taken up before the leaves turn brown is very liable to disease. Some were dug by the middle of May, and by the second week in June the greater portion was sent to the markets. They have, nearly without exception, been very scabby, much more so than they have been for many years. The leaves and stems of nearly all the late varieties are infested with the disease, and in several cases the tubers also. It is in the leaves and stems of Magnum

Bonum, but has not as yet touched the tubers. Speaking of *Magnum Bonums*, I know of a man who from 12 lbs. raised over 2 cwt. It is indeed an enormous cropper, and of excellent quality. —W. ROBERTS, *Penzance*.

M. CROUSSE'S NURSERY, NANCY, FRANCE.

I DARE SAY many readers of this Journal are well acquainted with the name of M. Crousse, Nancy, and perhaps it might interest a few to peruse a short description of the establishment. The Tuberous Begonias are now in a highly attractive condition. Amongst them we notice the well-known single varieties, such as *Trocadero*, beautiful bright scarlet, flowers very large; *Graham Bell* and *Charles Baltet*, both beautiful deep crimson flowers, the colour of the latter is very intense; *Madame Valette*, *Madame Crousse*, and *President Hardy*, are showy varieties of deep carmine rose and rosy pink, and the habit is all that can be desired. *Oriflamme* is also worthy of notice, being of a bright crimson tinted with vermilion—the flowers are large and of great substance; *Pearcei* is well known and needs no comment; *Solfaterre*, having beautiful foliage and flowers of a bright yellow tinted orange, and many other good varieties. Amongst the newest single forms are *Albert Crousse*, light red, very free and splendid habit; *Madame Saladin*, white slightly tinted with cream; *Admiration*, rich scarlet, flowers very large and freely produced; *Exposition de Seeaux*, very large, of an amaranth colour—the large petals are extremely long, thus making it very distinct; *Countess of Kingston* is also very large and richly coloured; *Léon de Saint Jean*, extremely large foliage—the flowers are of a light scarlet, centre tinted orange, and for a mass of flowers one of the best; *Louis Puteaux* has also fine foliage and flowers of a deep crimson red, centre lighter, very free, and good habit. Amongst the doubles are *Comtesse Horace de Choiseuil*, light salmon rose, centre almost pure white, very free and fine; *Mons. Keteleer*, very full and double, beautiful flesh rose colour; *Edouard Morren*, bright crimson-scarlet, is also very large and double; *Gloire de Nancy*, rich vermilion, flowers large and freely produced, extra fine; *Clémence Delahaye*, deep satiny pink, centre white and yellow, flowers rather small but freely produced; *Madame Thibaut*, beautiful light sulphur very double and fine. But particular attention must be drawn to the double seedlings that were for the first time exhibited at the last meeting of the Horticultural Society of Nancy, and which for size of flowers and robust growth entirely supersede all others yet introduced. In one, of a salmon buff colour, the flowers are over $7\frac{1}{2}$ inches in diameter, and others of various shades of colour of reddish crimson, salmon, light buff, creamy pink, and reddish pink, are all large. The double white claims particular attention, being very double and large. All these, as well as many thousand seedlings, are planted in good deep rich soil shaded by trees and tiffany overhead; but it must here be stated that they have on an average from 10° to 14° of heat more than in England, consequently greatly aiding the full development of the extra large doubles.

The Zonal Pelargoniums are fine. Amongst the singles are *Madame Colson*, flowers very large, of a rich salmon, trusses large; also *Madame Chaté*, salmon tinted rose, flowers and trusses large; *Comtesse d'Olonnes*, deep pink; *Antoine Rosenkranzer*, trusses large, violet-amaranth; *Jean III.*, deep scarlet, superb; *Mrs. Moore* is a beautiful improvement in the oculated class. The doubles seem to do exceedingly well here. We see such as *Roi des Violets*, very good; *E. About*, extra free and fine; *Emile de Girardin*, deep rose pink; *F. V. Raspail*, rich scarlet; *Gambetta*, flowers very large; *Madame Thibaut*, a very useful pink variety; *Mons. Gelein Lowagie*, lovely orange scarlet; *Madame Thiers*, a very fine double white; *Abel Carrière*, large trusses, salmon tinted rose, extra; *Paul Charbonier*, very large, double, orange scarlet; *M. Martha*, violet shaded amaranth; *Madame Léon Dalloy*, a peculiar shade of white tinted with lilac; *Comtesse H. de Choiseuil*, orange salmon, and for a mass of flowers equal to *Madame Thibaut*. We come next to the peltatum section of Pelargoniums. Single—*Flambeau*, large flowers, carmine rose, very bright; *Le Vésuve*, seedling from M. Dubus, flowers large, of a bright carmine red, colour distinct; *M. Dubus*, a splendid variety of a deep cerise carmine, extra fine. Double—*Gloire d'Orleans*, extremely free and double; *Madame Crousse*, a beautiful improvement in this class, flowers very large, of a beautiful soft fleshy rose, extra fine; *M. Dubus*, beautiful carmine rose; *Rosea plena fol. var.*, a distinct variety, beautiful rose tinted mauve; *Lucie Lemoine*, a useful variety; also *Sarah Bernhardt*, pure white, upper petals feathered maroon.

In the next house the ornamental foliage Begonias form a very interesting collection of the very best and newest sorts. The

following ten are the latest novelties raised at this nursery, all are good and distinct:—*Gaetan O'Gorman*, *Comtesse O'Gorman*, *Madame Champon*, *Murillo*, *Hermine*, *Distinction*, *Julie Sérot*, *Clémentine Gillot*, *Madame Henn Delasalle*, *Madame Edmond Deroux*, *Louise Chrétien*, exceedingly pretty; *Ondine*, *Madame Pigny*, *Monsieur Lefebvre*, *Titania*, *Madame Plassiard*, *Le Nubien*, and *Andalousie*. Coleuses are also very numerous, but many of the new ones so much resemble the older varieties that one often fails to see any improvement. Fuchsias are just commencing flowering, and consist of a fine batch of strong bushy plants. In the stove and temperate greenhouses we notice a good stock of such plants as Ferns, Anthuriums, Aralias, Bouvardias, Dracænas, Epiphyllums, Erythrinæ, Stephanotis, and other handsome plants.

We now turn our attention to the plants outside, and the first collection that attracts our attention is the Rose, which is represented by a large number of good varieties. The collections of Chrysanthemums, Delphiniums, Pæonies, and Phloxes are very numerous; the batch of seedlings of the latter contains many fine varieties with large flowers and spikes. There is also a fine stock of bedding plants. These in the early part of the summer are very pretty and extremely free:—*Antennaria*, *Arabis*, *Aubrietia Hendersonii*, very useful when a mass of deep purple is required; *Polemonium cæruleum*, very pretty; *Sedums*, *Stellaria graminea aurca*, *Iresines*, and many other useful and ornamental plants for embellishing and making the parterres attractive. I greatly admired the healthy vigour of the plants and the cleanliness noticeable throughout the whole nursery.—AN OBSERVER.

A NEW GARDEN PUMP.

ARNOLD'S "Patent Simplex Garden Pump," represented on

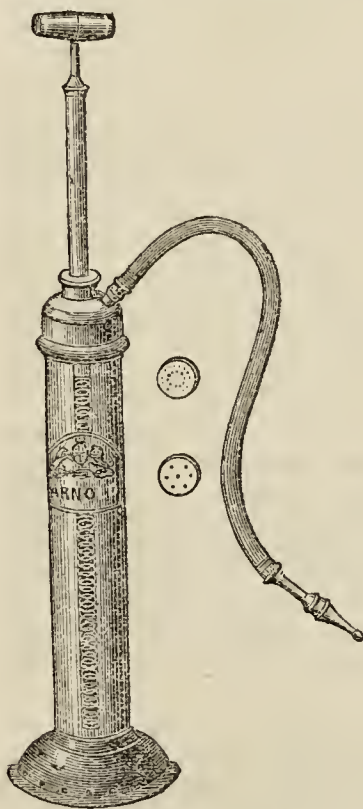


Fig. 41.—Simplex Garden Pump.

fig. 41, appears to be a most valuable garden appliance. Having given it a fair trial we are able to say that it is one of the best water ejectors that has come under our notice, and will be useful in both gardens and forcing houses. It is very easy to work, maintains a continuous stream of water of considerable force, and cannot readily get out of order. It is so constructed that no indiarubber or other packing is needed; in fact, apart from the pipe by which the water is conveyed to the nozzle (and the wooden handle), there is nothing but metal employed in its manufacture. On the pump being placed in a pail or other vessel of water all that is necessary is to press down the piston, and the spring in the cylinder causes it to rise promptly for the next stroke, and whatever water is not forced through the nozzle passes down the interior of the cylinder, not a drop touching the operator. We shall be surprised if this most easily worked and efficient contrivance for washing wall trees, Roses, and plants generally, does not become a great favourite with amateurs. It is a miniature garden engine of

real utility, and possesses the elements of simplicity and durability in a very marked manner.

CUT FLOWER TRADE IN AMERICA.

THE cut flower trade for some years has been growing with wonderful rapidity, till now in New York city alone the business has reached several million dollars annually. Growers of cut flowers, realising that the day has gone by for the raising of general mixture, or "trash" as it is termed, now confine themselves principally to forcing two or three articles and growing them well. Thus we find on Union Hill, near Jersey City, one man who confines himself to growing Tea Roses, Jacqueminot Roses, and Violets; another to forcing Lily of the Valley, Hyacinths, and Lilies; while still another puts all his energies in the cheaper but just as important Carnation, Bouvardia, and Smilax.

Fashion wields her iron sceptre and dictates to her votaries the kinds and colours of flowers to be used, as she does in everything

else. Last winter she decreed yellow, and Niel Roses and Sun-flowers and yellow Pansies were in demand.

The forcing of Roses is perhaps the greatest branch of this great industry, and the quantity consumed is enormous. It is impossible to even estimate the quantity. It is known that in Philadelphia, at one of the Assembly balls, that not less than twenty thousand Tea Roses were used, beside Jacqueminot and other kinds. At one affair in New York over five thousand Tea Roses were recently used in the decorations. The five or six principal commission dealers in Boston, New York, and Philadelphia probably pass twelve or fifteen thousand Tea Roses through their hands daily. When it is considered that the Roses that these gentlemen sell are the surplus required it may give some faint idea of the quantity consumed in the three cities. It is asserted that one firm of growers in New York cleared over twelve thousand dollars in one season in Jacqueminot Roses alone.

Of course this is an exceptional case, and the growers sometimes lose heavily. For instance, one firm down east undertook to grow Maréchal on a grand scale, and the result was a break in the market, and a twenty-five dollar bud sold for three dollars a hundred, productive figure being about five dollars at that time.

In Carnation blooms the quantity consumed is still more enormous. One commission dealer last winter passed through his hands an average of fifty thousand a month between November and April, and then complained that he had not enough to supply the demand. He sold nearly thirty thousand to one firm in one month, and he was informed that that was two thousand a day less than his customer used, or ninety thousand that month consumed by one firm. There are probably from ten to thirty thousand Carnation blooms used in Philadelphia daily, and sometimes more.

A few years ago Lycopodium was used almost entirely for filling bouquets. Now it is almost altogether discarded, and Smilax has taken its place. So enormous is the consumption of this plant that there are growers of it entirely. One man in Philadelphia, who raises it in connection with one or two other flowers, has cut to date nearly ten thousand strings, and this is a mere drop in the bucket to the amount grown.

For the Grant procession in one of our western cities over five hundred strings were used to decorate the hose carriages of the fire department.

Lily of the Valley plays an important part in the trade, one gentleman in Newport having several houses of it, and is so skilful in blooming it that he is enabled to have it the whole twelve months of the year. One firm in Philadelphia also possess the secret. Of necessity the quantity consumed of this flower is much less than that of some of the other leading things. Still, thousands of dollars annually pass into the hands of the growers of this gem among flowers.

Of the cities in the Union, New York and Boston each consume the greatest amount, Philadelphia next, among the eastern cities, and Chicago and Cincinnati of the western ones. The two latter, and in fact most of the cities and towns north, south, and west of New York and Boston, draw their heaviest supplies from the two last-mentioned cities and from Philadelphia. The trade is still in its infancy, and before many years it is safe to say that the cut flower business will be one of the most important of the trades that supply the luxuries of life.—W. E. MEEHAN (in *American Gardener's Monthly*).

PORTRAITS OF NEW AND NOTABLE PLANTS.

BUCKLANDIA POPULNEA.—"One of the most beautiful evergreen trees of the forests of the Sikkim Himalaya, at elevations of 4000 to 6000 feet; also not unfrequent in the Khasia mountains, where, however, it does not attain the same stature; and of the mountains of Sumatra. From the elevations at which it grows in the Himalaya there is no prospect of *Bucklandia* being hardy in England, but as a greenhouse ornament no plant of the class can be more attractive. The trunk is cylindric and straight in well-grown trees, and, together with the oblong crown of evergreen foliage, attains 100 feet in height."—(*Bot. Mag.*, t. 6507.)

STENOMESSON LUTEOVIRIDE.—"This is a new species from the high Andes of Ecuador, which flowered for the first time in the spring of 1879 with Messrs. E. G. Henderson & Son, of the Pine Apple Nurseries, Maida Vale. It is nearly allied to the well-known *Coburgia trichroma* of Herbert ("Bot. Mag.," tab. 3867), and quite similar to it in its cultural and climatic requirements."—(*Ibid.*, t. 6508.)

EPIMEDIUM PERRALDERIANUM.—"Is a native of the mountain woods of Babor, Foughell and Tababor in Eastern Khabylic, at elevations of 3000 to 5000 feet, whence it was introduced into cultivation by Dr. Cosson. The plants are perfectly hardy in Kew, and were presented by Dr. Reichenbach."—(*Ibid.*, t. 6509.)

CHIONOGRAPHIS JAPONICA.—"Though originally described by Thunberg nearly a century ago, this is a very rare and little known plant, of which we have seen no native specimens but those collected by Maximovicx in 1863, and one communicated by Captain Blomfield, R.N., in 1873. It is referred by Mr. Baker in his valuable paper on the aberrant tribes of Liliaceæ to the group *Helonieæ*, and its immediate affinity is with the Eastern N. American genera *Helonias* and *Chamælorium*. It is the only species of the genus. This very singular plant was raised from seed sent by Mr. Maries to Messrs. Veitch, with whom it flowered in April of the present year."—(*Ibid.*, t. 6510.)

AGAVE HORRIDA.—"This is one of the best known of the smaller Agaves, with a distinct continuous horny border to the leaf. It was introduced from Mexico by Verschaffelt in 1862, and is now to be found in all the more complete collections, but usually under the name either of *Regeliana* or *Desmetiana*, both of which rightfully belong to species of another section."—(*Ibid.*, t. 6511.)



KITCHEN GARDEN.

THE fine weather that has prevailed for several days has proved of great value for the eradication of weeds, and those have acted wisely who have plied the hoe freely. The watering of certain crops must be attended to, for it must be remembered that in consequence of a prolonged term of dull moist weather the roots of many plants are near the surface, and the crops are not in a good condition for withstanding drought. Celery, Strawberries, and recently planted crops of all kinds must be watered copiously if the dry weather continues. Look out for the second hatch of the Celery fly; a pair of sharp eyes and nimble fingers exercised for a few hours daily, finding and pinching sharply the small blisters immediately they are perceptible, will prove of great benefit to a valuable crop. Slugs are attacking the beds of young Cabbages. Frequent dustings of freshly slaked lime are highly useful provided the work is done at the right time. One dusting at ten o'clock at night when the slugs are feeding will be more effectual than ten dustings by daylight when they have retired to their haunts. There is more labour wasted by attempting to kill slugs by daylight than by almost any gardening operation. Ten minutes' work after dark will save hundreds of young Cabbage plants.

HARDY FRUIT GARDEN.

Fruit trees of all kinds are making much wood, due in a measure to the scantiness of the crop, the moist condition of the atmosphere, and the rains of June and July. All the shoots not required for extension should be cut back to within three or four leaves of their base, except shoots of Apple and Pear trees, that in some instances only grow a few inches and have the points terminated by a plump bud, which is invariably a fruit bud, and from which is produced the finest fruit. Similar remarks apply to Plums, also Cherries, especially Morello. Shoots 3 or 4 inches in length should not be shortened, as that would cause fresh growth to start from the base instead of inducing the formation of spurs. The leading shoots may be stopped at from 9 to 12 inches of growth, extension being desired as in young trees; but full-sized trees should have the extremities cut back similar to the side shoots. Any gross shoots likely to interfere with the symmetry of the specimen, or impoverish the weaker parts, should be removed. Wall trees should be examined frequently, tying or nailing-in extensions, and cutting back or removing breastwood, so as to admit all the air and light possible to the spurs and next year's bearing wood. Lay-in the wood of Peaches and Neectarines rather thinly, stopping any laterals on the strong shoots at the first joint, and cut-back any that are very vigorous. The Raspberry season being nearly over the old bearing wood should at once be cut out, and the young canes thinned to four or six of the strongest and best placed, which should be secured to the trellis if there be one, or left loose if they are afterwards to be secured to stakes, though in exposed situations it may be advisable to secure them loosely at once.

Wasps are so troublesome that to protect fruit from their ravages only netting that will effectually exclude them should be employed; and as autumn fruit is so scarce generally, no time must be lost in netting bushes of Red Warrington and other late varieties of Gooseberries, also Red and White Currants and Morello Cherries. If these are against walls with a north aspect they will keep in good condition longer than those in the open. Gather Apples as soon as they are fairly ripe, as most early Apples deteriorate in quality by being allowed to remain long on the trees. The crop of this useful fruit is very light, hence the necessity of greater care. Similar remarks apply to early Pears as to early Apples. Ground intended to be planted with Strawberries should be prepared and planted with as little delay as possible. Rich and deep ground and an open situation should be selected, the soil being deeply trenched and heavily manured, as the plants endure drought better than those in shallow soil. Plants established in 3-inch pots are the most suitable, placing them out in rows 30 to 36 inches asunder, and half those distances apart in the rows for the first year, every other plant being removed when the crop is gathered.

FRUIT HOUSES.

Figs.—The second crop of Figs being gathered attention must be directed to the maturation of the growths; and if former instructions have been followed in thinning and regulating the shoots and spurs little remains to be done beyond careful ventilating and watering. Water will only be required to prevent the borders becoming dry, the syringe being employed to keep down insects. A free circulation of warm dry air should be maintained until the foliage indicates signs of ripening. Where, however, the wood is crowded by all means thin it at once. Trees that produced a crop in June will now be ripening off another crop, and may be assisted by liberal supplies of water or liquid manure. Trees in pots never grow so strongly as those planted out, and this tends to the more certain maturity of their wood, hence they may be removed to the open air after the crop is gathered. Trees planted out should not have the sashes removed, but the house must be freely ventilated, as from the more vigorous growth of such trees they will need more time to ripen the foliage.

Melons.—The weather for the past few days has been all that the grower can desire, good fruit consequently being very plentiful. Before the fruits are very ripe they should be cut with a good portion of stem, and placed in a dry cool place so as to prolong the season of supply. Fire heat may safely be dispensed with during a continuance of such weather, closing the house early and maintaining a moist atmosphere to all plants other than those setting or ripening fruit. Under ordinary circumstances the houses, pits, and frames may be closed and the plants syringed at 3 P.M., but span-roofed houses should not be closed for half an hour later. For healthy and robust plants shading may almost be dispensed with, and less atmospheric moisture will be now required, especially by plants in frames. If the last batch of plants are weakly afford liquid manure about twice a week, but do not apply it very freely until the fruits are set, after which earth-up the roots with good lumpy compost. The last batch of plants in pits and frames will be setting the fruit, and must have a dry atmosphere with a little ventilation at night stopping each lateral one joint beyond the fruit. Continue to support fruits that are becoming heavy by means of tables placed beneath the trellis, and those in frames should be kept from the soil by slates, and when ripening may be elevated on small pots.

Cucumbers.—The general treatment for these continues the same. Plenty of atmospheric moisture, liberal feeding at the roots, free stopping and training the young growth, and thinning out the old being the chief points. Encourage the plants for autumn fruiting to make a strong growth, adding a little fresh soil as the roots penetrate through, abundance of surface roots being a true indication that the plants are doing well, maintaining a firm condition of the bed so as to induce short-jointed wood. A little fire heat should be employed on cold nights to prevent the temperature falling below 65°. Take advantage of every opportunity to collect and prepare soil for the winter plants, clearing the house of exhausted plants, remedying any defect in the heating apparatus, thoroughly cleansing the interior and exterior of the house.

ORCHARD HOUSE.

Apricot trees grown in pots in this structure will generally by this time have ripened their fruit, and as soon as this is all gathered the trees may with advantage be placed outside in a warm situation fully exposed to the sun, the pots being plunged in ashes. The trees should be well syringed every evening, and must be duly supplied with water at the roots. Peaches and Nectarines now becoming ripe must never be allowed to drop from the trees, even into a net. An examination of the trees should be made daily, removing the ripe fruit carefully with the hand, and as soon as the fruit is gathered syringing must be resorted to, to cleanse the foliage of insects. Where Pear trees are grown in pots some of them may be placed out of doors, as this will be likely to improve the quality of the fruit, while some may be near a north wall with a view to retarding the ripening process, thereby prolonging the season of particular varieties. It is not advisable to place Plum trees outdoors unless it is desired to retard the season of ripening. Figs will be ripening their fruit, and must be kept dry overhead and drier at the roots than during the swelling of the crop. Where Royal Muscadine, Black Hamburgh, or other early Grapes are trained over the pathway the fruit will be ripening, and will remain in condition for some time providing the fruit be kept dry. All fruit trees, whether in pots or planted out, should be kept somewhat drier at the roots as their fruit approaches ripeness. Ventilate freely at night as well as by day unless the weather be very cold and wet, or during the prevalence of high winds. Birds and insects must be excluded by hexagon netting.

FLOWER GARDEN.

Flower beds and borders will now be in their full beauty; every effort should be made to keep them in as good condition as possible. It will be necessary to examine the plants frequently, removing any dead or decayed leaves and flowers, trimming, regulating, or pegging the growth of such plants as Verbenas, Petunias, &c. All seed pods should be removed immediately they are formed. Any beds showing signs of exhaustion should have liquid manure liberally; but in the case of Pelargoniums, except such as are grown for their foliage, water should be sparingly given, or it will have a tendency to provoke growth at the expense of flowers. Any defects in the present season arrangements should be noted for avoidance another season, and any alterations intended should be decided on, so that an increased or diminished quantity of particular varieties may be provided for carrying out the proposed alteration. Insert the necessary stocks of cuttings of Pelargoniums so as to have them thoroughly established before winter. Herbaceous Phloxes are very fine this year, they should now be increased by cuttings inserted under handlights. It is hardly possible to have too many Clove Carnations, Pinks, &c., in gardens. Cuttings now inserted on a north border under handlights will root slowly but surely if kept close and moist until growth commences. Push forward the propagation of Daisies, Primroses, Polyanthuses, Forget-me-nots, Gentians, &c. Roses promise to be abundant and fine this autumn, but mildew is prevalent; prompt measures should be taken to arrest its progress, dusting the trees whilst damp with flour of sulphur. Should dry weather prevail liberal supplies of liquid manure will greatly assist a free growth. Climbing Roses, as Maréchal Niel, Climbing Devonensis, Gloire de Dijon, and similar varieties should have all the old wood that has borne flowers cut out, and the young shoots of medium size laid in not too thickly for next season's flowering.

PLANT HOUSES.

Orchids.—The East Indian house must be kept moderately close, and a growing atmosphere maintained; but if the weather be dull the moisture must be reduced, and recourse had to fire heat to maintain a temperature of 65° at night and 75° by day, the house being syringed and blocks damped at about three o'clock, the shading being withdrawn as soon as all fear of the sun scorching the foliage is past. Aërides, Phalænopses, Saccolabiums, and Vandas should receive every encouragement, and care must be taken to avoid giving a check, or it will result in stunted irregular growth. Be careful with Phalænopsis, as if the sphagnum becomes soddened the leaves will soon be diseased. Dispense with shade on the Cattleya house altogether, as light is of the greatest importance for the ripening of the pseudo-bulbs;

indeed Barkerias, Cattleyas, Dendrobiums, Epidendrums, Lælias, Oncidiums, &c., unless thoroughly ripened will produce weak and deformed flowers, followed by a weak after-growth. *Calanthe Masuca* and *C. veratrifolia* may now be repotted. If the soil is soddened carefully shake it out, washing the roots in tepid water, repotting in equal parts turfy loam and peat, adding a little decayed manure and some pieces of charcoal about the size of nuts, all well mixed together, affording about 2 inches depth of drainage, and keeping the plants about an inch below the top of the pot. *Calanthes vestita*, Veitchi, and Warneri, also *Limatodes rosea*, should have a maximum of light, heat, moisture, and air, watering with weak liquid manure, which will assist the growth of the pseudo-bulbs.

TRADE CATALOGUES RECEIVED.

James Veitch & Sons, King's Road, Chelsea.—*Illustrated Catalogue of Hyacinths and Bulbs, and List of Strawberries.*

Benjamin S. Williams, Upper Holloway, London, N.—*Catalogue of Bulbs, Fruit Trees, New Plants, and Roses.*

Newport Pottery Company, Monmouthshire.—*Illustrated Catalogue of Garden Pottery.*

Thomas S. Ware, Hale Farm Nurseries.—*Catalogues of Bulbs and Hardy Plants.*

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Bulbs.*



** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Book (*D. L. G.*).—The "Orchid Growers' Manual," published by Mr. B. S. Williams, Victoria and Paradise Nurseries, Holloway, London, will probably answer your requirements. Its price is 5s., post free 5s. 5d. The term "zonal" has reference to the coloured zone in the foliage of *Pelargoniums*.

Love in a Mist (*Powis Square*).—Several species of *Nigella* are now flowering in the Royal Gardens, Kew, and other places.

Crested Moss Rose (*J. R. & Sons*).—The buds you have sent are of the above attractive variety, which we have grown for more than thirty years. It is often found in old gardens and some nurseries, and is worthy of more general cultivation. It succeeds well worked on the Briar stock.

Cuttings of Tea Roses (*J. B.*).—The writer to which you refer does not grow Roses or Rose cuttings for sale, indeed the Roses about which he writes are not his but his employer's. We can only suggest that you purchase a few plants from a nurseryman, and you will then be able to carry out your project.

Strawberries in Light Soil (*Idem*).—If the soil is made firm before planting and it is mulched with manure, and the surface further thickly covered with straw or other littery material as soon as the plants commence flowering, to keep the ground cool and moist, we think you may succeed in your object. The best varieties for your purpose are *Vicomtesse Hericart de Thury* and *President*.

Black Hamburgh Grapes (*S. T. N.*).—The Grapes sent, so far from being "perfect," are very faulty indeed. They are of good size, but destitute of colour, texture, and flavour. The Vines are either overcropped or require more support than they have received, and we also suspect they also require more ventilation.

Violas (*G. G. K.*).—The varieties do not succeed equally well in all soils and situations, and there are none that can be depended on for producing "a continuous spring, summer, and autumn display in a hot dry soil" in the south of England during an ordinary hot summer. Try the following:—*Yellows*: *Sovereign*, *Dickson's Golden Gem*, and *Chieftain*. *Blue or Purple*: *Blue Bell*, *The Tory*, and *Royal Visit*. *White*: *Pearl*, *Purity*, and *Nonpareil*.

Rose Annuals (*Canadian Inquirer*).—The "Rosarians' Year Book," edited by the Rev. H. H. D'Ombraun, Honorary Secretary of the National Rose Society, is published annually, price 1s. Messrs. Benrose & Sons, 10, Paternoster Buildings, London, are the publishers. The "Rose Annual," which contains excellent coloured plates of new Roses, can be had from the author, Mr. William Paul, Waltham Cross, Herts, price 5s.

American Blight (*Inquirer*).—Your trees are much infested with this insect. Syringe them with a very strong solution of soft soap, 6 ozs. of soap being dissolved in a gallon of water, to which may be added half an ounce of paraffin. A solution of nicotine soap of the same strength will also destroy the pest. In the winter scrub the trees with brine, applying also paraffin with a brush to those parts where the insects most abound, but not dressing the smooth bark of the trees with the oil, or it may seriously injure the trees.

Gladioluses Dying (*J. R. W.*).—They are, we fear, attacked by the disease that is often so destructive to these flowers. We know of no remedy, and we can only suggest that you procure healthy corms from a fresh source, and keep them separate from your own stock, and also plant them in a fresh place. The disease appears more pronounced in rich highly manured soil than in ground well worked and sweetened, but only moderately fertile in character.

Vine not Thriving (*R. P. O.*).—You erred by dishudding in the manner you describe, but that is not sufficient to account for the blistered and warted condition of the foliage. There are no insects on the leaves, but the sap vessels are ruptured, and in this state the Vine cannot grow. We are, without sufficient data to guide us, quite unable to account for its present unsatisfactory state, and we think you will lose time by attempting to restore it. We should dig it up and plant another Vine. A healthy young Vine planted carefully at once would make good growth the present season.

Trees for Orchard House (*W. B. W.*).—Peaches and Nectarines potted as maidens commence bearing the second year when well managed, and improve yearly with judicious treatment. The leading fruit nurserymen specially prepare trees for growing in pots, and you had much better purchase such trees than attempt growing your own. Healthy young trees may be removed from the garden into the orchard house, and if the transplanting is carefully done early in the autumn just as the foliage commences changing, a moderate crop may be taken the following year, but everything depends on the condition of the trees and the treatment to which they are subjected. Notes on the management of orchard houses are given from time to time in our "Work for the Week" columns.

Cropping Strong Soil (*Brampton*).—The soil may be improved by ridging it in the autumn and breaking up the ridges two or three times during the winter when they are crusted with frost. Ashes and gritty matter of any kind should also be mixed with it in as large quantities as can be obtained, and the soil will in due time be improved considerably. Such soil generally suits Cabbages, Broccolis, Kales, Savoys, &c., well; also Broad Beans, Beans, late Peas, Rhubarb, Strawberries, Raspberries, and hush fruits generally, but special care is needed in sowing and planting so as to enable the crops and trees to obtain a good start. This work must only be done in fine weather, the soil in contact with the seeds and roots being made as fine as possible. Soot is a good manure for such soil.

Earwigs Infesting Climbers (*W. A. T.*).—These pests can only be successfully dealt with by trapping, than which for your purpose few things are better than Broad Bean stalks cut into lengths of 5 or 6 inches, and placed horizontally in different parts of the trees or plants. The hollow stems of Hemlock, Sunflower, and Jerusalem Artichokes are equally applicable. The traps should be examined every day and the earwigs blown out into scalding water. Earwig traps, which may be had of most nurserymen, will prove effectual if well attended to. The climbers may be syringed with a solution of soft soap, 2 ozs. to the gallon of water, adding a pint of tobacco juice, which will make the plants distasteful to pests but will not kill them. Perseverance in trapping is the only remedy we know of. Syringe the ant-infested Begonia in the evening with Fir-tree oil insecticide, half a pint to six gallons of water, and repeating the syringing occasionally as is necessary. There are probably some insects on the plant which attract the ants.

Hardy "Red" Passion-Flowers (*Idem*).—*Passiflora cærulea* var. *rubra* has reddish flowers, and it is quite as hardy as the species. *Comte Nesselrode* has reddish flowers, and succeeds in a warm situation with protection in winter; indeed most of the greenhouse kinds succeed against a wall with a south aspect when they are protected in severe weather.

Garden Roses (*B. D.*).—*La France*, *Gloire de Dijon*, *John Hopper*, *Duke of Edinburgh*, *Jules Margottin*, *Souvenir de la Malmaison*, *Baronne de Rothschild*, *Cheshunt Hybrid*, *Général Jacqueminot*, *Dupuy Jamain*, *Sénéateur Vaisse*, *Alfred Colomb*, *Marquise de Castellane*, *Madame Victor Verdier*, *Marie Baumann*, *Charles Lefebvre*, *Boule de Neige*, *Exposition de Bric*, *Prince Camille de Rohan*, *Marie Finger*, *Céline Forestier*, *Beauty of Waltham*, *Abel Grand*, *Marie Rady*, *Dr. Andry*, *Mrs. Bosanquet*, *Capitaine Christy*, *Madame C. Joigneaux*, *Victor Verdier*, *Annie Wood*, *Mons. E. Y. Teas*, *Marguerite de St. Amand*, *Comtesse d'Oxford*, *Louis Van Houtte*, *Etienne Levet*, and *Camille Bernardin*. All of them will succeed on their own roots, but you will obtain better plants from nurserymen worked on other stocks.

Boilers for Heating Vinery (*B.*).—A riveted saddle boiler 24 inches long with arch inside 14 by 14 inches, outside measure 22 inches in width and 18 inches depth, is calculated to heat 450 feet of 4-inch pipe; but we should have the next size larger, or 30 inches long, inside of arch 16 by 16 inches, and outside measure 24 by 20 inches, as it is better to have sufficient heating power than too little, as with the latter sharp firing must be resorted to, and there is a great waste of fuel. A new boiler will do wonders when first set, but after a time becomes so coated with soot or other incrustation as to lose much heating power, hence the desirability of having a sufficiently powerful boiler, allowing a considerable margin for contingencies.

The White Beam Tree (*E. D. C. T.*).—The tree of which you require the name and uses is the *Pyrus Aria* of botanists, and is commonly known as the White Beam Tree, in reference to the white under surface of the leaves. It is a native of Britain, chiefly in the mountainous districts on limestone soils. Its fruit is acid and astringent, but is not disagreeable to eat when in a state of incipient decay, like the Medlar. When dried and reduced to powder, it has been converted into a sort of bread during times of scarcity both in France and Sweden; and when fermented it forms a beer, or, by distillation, a powerful spirit. It is greedily eaten by birds, for which reason the trees are ordered to be preserved in French forests, that the number of birds may be increased, in order to keep down the insects. The fruit also furnishes food to squirrels, and when it drops, deer and the hedgehog eat it with avidity. The wood is very hard, of a fine close grain, yellowish white, and susceptible of a high polish. It may be stained of any colour, and is much used in making handles of knives and forks, wooden spoons, and for musical instruments, and various articles of turneryware. The weed-like plant is *Oblidonium majus*.

Fruit-tree Leaves Discoloured (*L. M.*).—Red spider on the under surfaces of the leaves of the Peach trees is the cause of the yellow appearance of the foliage; but the insects are not very numerous, and are almost unpreventible on trees on walls during hot weather. Unless your trees were much more seriously affected last year than they are now insects have had nothing whatever to do with the barrenness of the trees. We are unable to state the cause of the slight discolouration of the Plum-tree leaves; excessive wet would cause it, or sudden and powerful sun after a period of dull weather. It will not in any way impair the fruitfulness of the trees. There are a few—very few—aphides on the under surfaces of the leaves, but they are not the cause of the discolouration referred to.

Grubs on Pear Tree (*M. F. S.*).—Your trees are attacked by the Pear sawfly, *Selandria æthiops*, which attacks the upper surface of Pear tree leaves during the months of July, August, and September. The description and habit of the insect are as follows:—The grubs are nearly half an inch long, cylindrical, but thicker towards the head than at the other extremity. The whole body, except at the time of skin-casting, is covered with a sticky, greenish black matter, and from this they have been named. Whilst feeding, the fore part of the body is so swollen that the vermin looks somewhat like a small tadpole. If the slimy matter is removed from the body this is found to be a grub or caterpillar with twenty feet, and of a pitchy brown colour. At the last-but-one casting of its skin the sliminess no longer appears, and the grubs become of a clayey colour. They finally form a brown cocoon about October, and remain in the pupa state until the following June or July, when the perfect insect comes forth. This fly is shining black, and the tips of the legs yellowish. The female lays her eggs on the upper surface of the leaves. The slime on the grub is of a peculiar nature, not being dried by exposure to the hottest sunshine. Dusting the tree with freshly slaked lime is the remedy for destroying these grubs.

Propagating Vines (*A Subscriber*).—If you take a piece of firm young wood after the leaves have fallen and cut it smoothly across just under a joint or eye, and shorten it to the eye above, and insert the cutting in soil either in a pot or in the garden, just leaving the top eye visible, that cutting will grow if the soil is kept at the right degree of moisture. The "eye" of a Vine is the bud that forms in the axil of the leaf. If the portion of the stem bearing the bud is cut out about half an inch above and below the bud, cutting from the back of the stem and slanting from the bud, then paring the bark off behind the bud, and insert the portion so prepared in light loamy soil in a heated frame in early spring, growth will start from the buds and roots from the wood, and a young Vine will be the result. We trust we have made the matter plain enough for you.

Names of Fruit (*W. B. Fisher*).—The Neectarine is the Boston, an American variety.

Names of Plants (*M. M.*).—The specimens are insufficient. If you will send others in a small box packed so as to arrive in good condition we will endeavour to name them. Sprays simply enclosed in letters generally arrive so much dried and crushed that it is impossible to identify them. (*M. H.*).—2, *Lysimachia vulgaris*; 3, *Silene Armeria*; 4, *Erigeron purpureum*. The other was too much withered to be recognisable. Send another specimen. (*A. Boyle*).—The specimen was much crushed by being sent in a letter, but it appeared to be *Briza maxima*. (*Rev. W. Ager*).—*Lycostera formosa*. (*J. Boyes*).—1, *Thalictrum alpinum*; 2, *Monarda didyma*; 3, Unrecognisable; 4, *Lysimachia vulgaris*; 5, Much withered, but resembles *Eupatorium purpureum*; 6, *A. Verbasum*, but too withered for us to identify the species. (*Rhyl*).—1, *Chrysanthemum coronarium*; 2, *Lonicera tartarica*; 3, *Monochaetum sericeum*; 4, Quite insufficient for identification; 5, *Hypericum perforatum*; 6, *Sedum Ewersii*. (*A. B. C*).—3, *Eurya latifolia variegata*; 4, An *Adiantum*, but was too small a specimen to be identified; 1 and 2 were totally insufficient for recognition. (*K. A. H.*).—*Adiantum formosum*. (*W. Begbie*).—1, *Polygonum minus*; 2, *Senecio Jacobaea*; 3, *Medicago lupulina*.



POULTRY, PIGEON, AND BEE CHRONICLE.

ROTATION OF CROPPING FOR HEAVY OR MIXED LOAMY SOILS.

(Continued from page 151.)

WE propose to further illustrate this subject by introducing a rotation upon certain strong soils to be found in various districts of the kingdom. The land has been cultivated, and permitted by both leases and custom to be so managed, in consequence of the land being made more valuable to both owner and occupier by a privileged system of cropping. The reason why we refer to it specially is because it is only permitted upon soils of unusual fertility and of proved capacity for producing valuable crops of corn and pulse in quicker succession than is common to strong soils. We will again take a farm of 200 acres of arable land, and refer to the rotation which we find has been in operation from time immemorial—viz., by taking alternate crops of cereals and pulse, with a long fallow made once in seven years. Under that arrangement 100 acres of Wheat or part Oats would be taken after a fallow; the following year crops of Beans, Peas, and Vetches would be taken upon 100 acres; and this is the old-fashioned system, by which it was reckoned that a higher rent could be afforded than by any other known rotation. Our object in proposing an alteration to some extent is to show the home farmer a plan of cultivation whereby he may obtain the full advantage of close cropping of saleable produce, and at the same time largely provide food for cattle.

We therefore propose to autumn-fallow by steam power 100 acres as soon as the land is cleared of the Wheat or other cereal crops.

Such soils as we now have under consideration, unless by great neglect, are not troubled much with couch, but oftener with the water grass, which roots only on the surface. In consequence surface culture is only required and the grass and weeds being removed, after which it may be ploughed and lie exposed for the winter months. If, however, the land is a perfectly clean corn stubble winter Beans and winter Vetches may be grown, either separate or mixed; but as this will only apply to a portion of the pulse line we shall treat it as the exception, and refer to the mode of cropping we propose after the land has laid fallow during the winter. As we have 100 acres to crop we propose that 20 acres should be sown with Broad Clover and Giant Saintfoin in the Wheat or Oats; 20 acres to be sown with winter Beans and Vetches mixed if the season is favourable, otherwise in the spring; 20 acres to be sown with Early Mazagan Beans at 30 inches apart in the lines and summer tares mixed; 20 acres of Beans of the ordinary Tick variety and Partridge Peas mixed; and 20 acres Early Mazagan Beans planted at 4 feet apart between the lines, and a line of Mangold between. This double culture of roots, such as Cabbage, Kohl Rabi, Mangold, or Belgian Carrots, may be extended by removing the tares or Partridge Peas from the seeding, because they would spread their haulm across the intervals and injure the growth of roots. Now, this rotation offers the opportunity for the home farmer to grow a large crop of roots as well as pulse crops, for we consider Beans are an uncertain crop, and therefore we grow either tares or Peas with them, or otherwise root crops at intervals, thus never trusting entirely to the Beans alone. After the Beans and other pulse and root crops are removed the land should be scarified by steam power, surface-cleaned, and manured for Wheat, or part Oats, either with yard dung or artificials according to the season. The 20 acres of Clover lea after having borne a crop of hay and seed, or two crops of hay, will come in for Wheat or Oats, whichever may be advisable in accordance with the season or other circumstances. Under this rotation we have 100 acres of either Wheat or Oats, and 100 acres bearing a crop of Clover hay or seed, a mixed crop of Beans and Peas, and a mixed crop of Beans and roots grown in various proportions, according to the requirements of stock and the extent of grass land attached to the farm. Before leaving this rotation we beg to say that we have often grown 25 tons of Mangold per acre, and Cabbage &c., in the same proportion in the intervals between the rows of Beans; and for further information on this subject we refer the reader to the article on the cultivation of Beans dated March 13th, 1879, in this Journal.

There is one more system which is exclusively applied to strong land; it is, however, at present an exceptional one, and we allude to the practice of continuous corn-growing as carried out by two gentlemen—viz., Mr. John Prout of Sawbridgeworth, Herts, and Mr. Edward Middleditch of Blunsden, Swindon, Wilts, who have each helped materially to solve some of the difficulties of clay farming. Mr. Prout, who was the first to attempt the system commenced in 1862, and has continued it up to the present time, and the only deviation from the growth of corn crops has been a few acres of Mangold, Cabbage, and Clover, and occasionally a few acres of Italian Rye Grass or tares. This, however, does not interfere with his general system of corn crops, and it may do so in a still less degree by laying down a small portion in permanent grass or Lucerne; we will therefore consider the subject as headed above has been practically shown to have grown cereals profitably on the same land for a number of years successively, and continued yearly by disposal of the whole produce, including straw, upon the land by auction on the eve of harvest. We wish the home farmer to understand that these striking results have been obtained from cultivation by steam power and the application of artificial manures only. Now, this system was originally

conceived through the experiments of Messrs. Lawes and Gilbert, who for a long series of years have proved the possibility of growing the same kind of crops upon the same soil annually. We have in consequence introduced and taken notice of the practice of Messrs. Prout and Middleditch, for the purpose of removing all impressions from the mind of the home farmer as to the actual necessity of change of crops, unless it is to obtain some such advantages as the rearing and feeding of cattle and sheep on the home farm.

Having referred to the rotations adapted and applicable under varying circumstances to heavy and flat-lying soils we now propose to refer to the mixed loamy soils, which are usually undulating. We find clays as a subsoil varying from strong and tenacious to a mild and marly brick earth, with surfaces varying from a kind of sandy loam to a friable hazel loam. These soils, notwithstanding the strength of the subsoil, are capable of being cropped in a different way from table lands, as instanced by a farm we occupied for many years, which we cropped in rather a peculiar manner, with the twofold object of growing corn, pulse, roots, grass, &c., and to provide for a heavy stock, both of cattle and sheep. In describing the system of cropping pursued we will again take a farm of 200 acres of arable land. The cropping is, correctly speaking, a five-course; we will therefore take one year's cropping of the whole 200 acres in divisions of 40 acres each, as we used to crop and cultivate them. The first division consisted of 40 acres of Wheat grown after Clover lea, pulse, and root crops in part, which will be more fully described in the fifth division. The second division of 40 acres was cropped, 20 acres with Oats, either winter Oats or white Canadians, and followed by stubble Turnips sown between the shocks; and 20 acres of Oats and Barley mixed as drage corn, and succeeded by an autumn fallow. The third division of 40 acres, cropped 20 acres with Mangold after stubble Turnips fed off by sheep eating cake, &c., and 20 acres of Potatoes planted after an autumn and winter fallow. The fourth division of 40 acres, cropped with Wheat and part Lent corn, according to circumstances of the season, &c., 20 acres of Wheat after Mangold pulled off for box-feeding of cattle, &c., and 20 acres of Lent corn sown after Potatoes, which were sometimes sown with Turnips also as a double crop, the Potatoes being sold and the Turnips pulled off for feeding sheep and cattle. In the year 1860 the Potatoes proved a full crop, and the Turnips weighed 28 tons per acre. The fifth and last division of 40 acres cropped with Clover, pulse, and Turnips, &c.; 20 acres of Clover and Giant Saintfoin seeded in the Wheat, grown after Mangold, 10 acres of Beans and Peas mixed, or with Beans and roots as a double crop, and 10 acres cropped with Trifolium of three sorts, and part Vetches, all sown in autumn, and followed in the spring by Swedish Turnips, common Turnips, Cabbages, &c. In this five-course rotation the crops succeed each other during the five years in the same way as in the five divisions, excepting the alternation of Clover and pulse crops. And in this way the annual produce will be—of Wheat 60 acres, Lent corn 60 acres, pulse 10 acres, Clover 20 acres, Potatoes 20 acres, root crops 50 acres, and green fodder crops 10 acres. In conclusion it will be observed that not only a large acreage of sale crops are grown in this last rotation, but a large provision is made and secured for the feeding of cattle and sheep, and thus maintaining the fertility of the land, but also keeping the land clean by the constant work and cultivation, and quick succession of crops, giving the opportunity to keep under the couch and weeds at a little expense chiefly by forking out by hand labour.

WORK ON THE HOME FARM.

Horse Labour.—During the impediment to harvest work which has continued at intervals up to the time we are writing, the horse labour of the farm must have been various and of a jobbing character. Unless a favourable change takes place in the weather it will be impossible to continue the work of the reaping and binding machine, because the Wheat cannot be cut and tied when the straw is damp or wet without risk of serious injury to the grain. These observations apply with equal force to reaping of any kind, whether by machine with hand tiers to follow, or by hand labour. In every case when corn is to be tied into sheaves whether of Wheat, Oats, or Barley, it should not be cut faster than it can be tied. The question of tying is of great importance, especially in a wet or showery harvest, for in case the corn is cut and tied at intervals whilst the straw is dry, and it is properly set up in shocks of a moderate size, only a portion of the grain can be injured. Laying out and spreading dung either from the farmyard or cattle boxes ought to be done during intervals of obstruction to harvest work. Stubble Turnips may now be sown daily as fast as the corn is cut, and as soon as the crop is set up in shock on one-third of the land the other two-thirds may be ploughed and sown with Turnip seed every evening, and finished off whilst the ground is soft and moist, leaving the other third whereon the crop is standing to be sown after

harvesting the corn. Sowing Trifolium should also be done immediately after the stubble Turnip seed is sown, for the slugs being the greatest enemy we have to fear, the sooner the seed can be sown the more likely it is to evade their depredations. Although the best way is to sow the Trifolium seed and harrow it in on the surface, yet this plan does not secure it against the slugs as well as shallow ploughing, for that disturbs the slugs. Ploughing shallow also gives an opportunity for dragging out any lumps of couch or onion grass which may be found. We recommend all three sorts of Trifolium to be sown—the early crimson blossom, the second early pink blossom, and the latest of all the perfect white blossom.

Hand Labour.—This will now consist principally of attending the harvesting of the different corn crops, such as setting up the corn into shocks as fast as it is cut and bound by the reaping and binding machine, or otherwise, in the absence of machinery. Hand labour will be employed in cutting, tying, and setting-up, and this is commonly done by the acre, giving an opportunity for the men to employ their wives and families in assisting and earning more money to their common advantage. When the corn is too wet for cutting there will be hoeing and singling late-sown Turnips to be done; the mowing of second crops of Clover may be done at such times, and early in the morning whilst heavy dews prevail. Trimming the quickset hedges too may be done at intervals, especially in those cases where the borders and ditches have been cut, and the grass carried away for feeding cattle, pigs, &c., in the yards. Men should also be at work preparing straw and piling it away for use in thatching the corn and hayricks. We must again advise the home farmer to use every endeavour to obtain a man capable of thatching the ricks as a regular labourer upon the farm. Just at this time it will have to be decided as to what portion of the second growth of Clover shall be cut for hay or left for seed, and there are various circumstances likely to occur and too numerous to mention here which must eventually decide the question, and in this case the judgment of the home farmer will be necessary in deciding the course to be pursued. Shepherds will now require great caution in all districts where low-lying meadows or irrigated meadows prevail, because it will be dangerous to feed the sheep entirely upon such pastures only, and at the same time allow them to remain thereon at night time; for after the serious losses of last year by the fluke rot in sheep we advise that the grass land alluded to be not fed at all by sheep; but in case there is a necessity for feeding some parkland pastures even these are dangerous, unless the precaution is taken to give the sheep a liberal allowance of oilcake and cracked Beans, and allow them to retire for the night to an arable field producing Clover, Saintfoin, or the mixed grasses, or otherwise Vetches and tall Rape, or early Turnips, Cabbages, &c., with rock salt always within reach. This generous and mixed system of feeding, together with the dry land night quarters, will generally keep the animals sound, although whilst feeding a few hours daily in park lands they may possibly take into the system the entozoa or fluke egg. Let it be borne in mind that we cannot trust to this mode of feeding entirely if the sheep run upon grass land lately flooded, nor yet to the irrigated or low-lying meadows. Cattle now have abundance of grass feeding where the changes of pasture has been attended to properly. It is important, however, where grass may be short that the dairy cows may receive oilcake with advantage both in the milk and its produce, and with benefit to the pastures.

THE AMERICAN HARVEST.

VAST as was the cereal product of the States last year, it will be greatly exceeded this season, and the whole of the prodigious surplus over what the Americans themselves will consume is practically bespoken for the English market, for the intelligible reason that there alone can it be always sold at a price. This surplus is a very serious fact, of which mere figures give but a vague idea. In one of the interesting reports recently contributed by Mr. Victor Drummond, Secretary of the Legation at Washington, with respect to the industry and commerce of the United States, he quotes with approval the estimate of the New York Bulletin, that the surplus of American Wheat at the close of the present harvest may exceed the average requirements of Europe by from one hundred million to one hundred and fifty million bushels, and naturally enough he adds that this must produce exceptionally low prices for breadstuffs. The opinion thus given was committed to paper before the end of June, when the harvest prospect was as yet uncertain; but a month later served to enlarge the estimate. At the end of July we find an eminent New York firm calculating that the harvest of Wheat will represent a total of five hundred million bushels, or fifty million bushels more than the enormous yield of 1879; that the Oat crop also will largely exceed that of last year; and that Indian Corn may reach a yield of fifteen hundred million bushels. The surplus of Wheat available for Europe over and above what sufficed for previous years of average European harvests they put at two hundred and thirty-three million bushels. Now, the entire export of Wheat from the States in the twelve months ending the 30th of June last was in round numbers one hundred

and forty-two million bushels, and if we assume that the shipments for the succeeding twelve months are only on the same scale, we shall have above four hundred million bushels of Wheat of the new crop left for consumption in the States. But the States cannot consume three-fourths of this, so that we have a surplus of one hundred million bushels over and above the abnormally large total sent to Europe in the last twelve months. It is an excess upon an excess; the undisposed balance of 1879 crop being carried forward to swell the still greater excess of 1880. Without being disposed to exaggerate, it is difficult to avoid the conclusion that the United States will have fully two hundred and forty million bushels of Wheat to dispose of for export during the next twelve months—that is, thirty million quarters, or about a third more than the whole consumption of Great Britain. In other words, if our soil had not produced a grain of Wheat this year, and if all the rest of the world had not a bushel to spare us, the American surplus would feed this kingdom easily, and leave a few million quarters to spare.

It is a good prospect, as we before observed, for the home consumer, and a splendid one for the American grower, but it is unrelieved gloom for the English farmer. What, it may be asked, is he to do with American Wheat coming over to this country now at the rate of four hundred thousand quarters a week, and with a further accumulation in the States, which seems always growing, as a vast additional acreage of fertile land is annually brought under cultivation? The hitherto accepted ideas as to the price which would pay an American farmer must be revised by the light which this rate of productive growth throws on the whole question. Last year it was said that American Wheat could be profitably delivered in English markets for 30s. a quarter, but it is now believed that even so low a value as 25s. a quarter would not keep it back. It is entirely a matter of transport, but then facilities of transport are always increasing with new lines of railway; and vessels suitable for grain carriage across the Atlantic are fast being multiplied to meet the demand for them. Neither railway nor ocean rates of freight will ever, so far as can be seen, reach a seriously obstructive point, and, failing that contingency, the accumulated store must find its way to our markets in an ever-gathering avalanche. To the home farmer there is ample food for reflection in a crisis for which no agricultural authority from Hesiod to Arthur Young can, so far as we know, find an exact parallel.—(*Daily Telegraph*.)

ROYAL AGRICULTURAL SOCIETY OF IRELAND'S SHOW.

THIS has been held this year at Clonmel, and if the number of entries comparatively is to be taken as a criterion of success, success has certainly been achieved. In Derry the number was 387 in 1875; Cork, 674 in 1876; Galway, 493 in 1877; Dublin, 1200 in 1878; and Newry last year only 460; while Clonmel can boast of 930. To prevent bias very many of the Judges were English and Scotch, and they were unanimous in giving it as their opinion that as a whole the animals exhibited were very superior. This Show, and especially some features of it, owing to the past unfavourable seasons was looked to with more than ordinary interest both in Ireland and Great Britain, and it must be a matter of congratulation that there was no falling away. The unavoidable absence of the Lord Lieutenant, owing to the death of the Dowager Countess Cowper, took away one of the attractive features of such expositions; but the weather made amends, for it has been several years since we had such fine warm, very warm, weather here. The shade thermometer has ranged from 70° to 78° during the past four days, and to-day has attained the maximum of 82°, which was on no day paralleled last year. This added immensely to the gala appearance of the Show, which was largely attended, and the amounts received for admission must have been considerable, as a charge of 1s. was made for admission to the jumping ground, 2s. 6d. to the grand stand, besides 5s. the first day, and 2s. 6d. the second, and 1s. the third for entrance. The Aylesbury Dairy Company had a large allotted space in conjunction with the Show too, and for which 1s. special charge was also made. This had much interest for the farming class, as this is a noted dairy district; but many thought for the sake of the humbler farmers, and their wives and daughters, that no separate charge should have been made. Among the rest Canon Bagot, who brought the Irish contingent to Kilburn last year, expressed this opinion to me, but said the local Committee were responsible. As your readers generally would neither be interested in details of the various breeds of stock or the prizewinners in the several classes, I shall only extend this notice by referring to the farm produce and a few other details briefly. Seymour Mowbray, Esq., Killeary, Mountrath, obtained the splendid cup presented by W. & H. M. Goulding, manure manufacturers, Cork, and the Society's first silver medal, for a very fine collection, containing several varieties of almost all the usual crops grown on the farm, including forty fine varieties of Potatoes, the following being the principal:—*Red-skinned*: Kerr's Red Champion, Surprise, Early Rose, Brownell's Beauty, American Chiles, Grampion, Early Redskin, Flourball, &c. *White*: Porter's

Excelsior, Woodstock Kidney, Schoolmaster, Snowflake, Magnum Bonum, Victoria Seedling (Paterson's Victoria), Flounders (very generally grown as early kind in Ireland), Ashleaf Kidney, American Prolific. *Blue-skinned*: Skerry Blue, American Purple, Scotch Blue. *Purple-striped*: Dons, Oneida (very curiously marked), Peach Blow (said to be a very good late variety). The largest Potatoes were Bresee's Peerless, which I am told is very largely grown in Canada, and forms the staple crop. If free from disease and suitable for table use it should be largely grown in Ireland. The latest variety shown was Scotch Champion. The second-prize collection was furnished by J. D. Paul, Esq., Ellenfield, Drumcondray, and to this was attached the fine challenge cup presented by Messrs. Sutton & Sons, Reading. This had some wonderful roots, especially Mangolds, which some thought could have hardly attained their dimensions this year. The farming class were much interested in a self-binding machine, made and sent by the Toronto Company.—W. J. M., Clonmel.

HARVEST DATES IN BERKS.

MR. T. OWEN of Clapton Farm, Hungerford, has written as follows:—"So much having recently been said and written as to the lateness of the crops and the harvest prospects, I have from my diaries compiled a table which may be interesting just now, as it shows at a glance the dates on which I have commenced reaping, and also finished harvest, each year from 1819 until 1878. The dates, which are thoroughly accurate, show that in twenty-six years I began reaping in July and thirty-four years in August, July the 15th being the earliest date and August the 27th the latest. In twelve years I finished in August, forty-two years in September, five in October, and one in November."

Memorandum when reaping Wheat commenced and when harvest finished on Clapton Farm (containing 600 acres of arable land) from 1819:—

Years.	Began Reaping.	Finished Harvest.	Years.	Began Reaping.	Finished Harvest.
1819	July 30	Sept. 2	1849	Aug. 6	Sept. 17
1820	Aug. 3	" 7	1850	" 5	" 7
1821	" 17	" 29	1851	" 5	" 12
1822	July 15	" 3	1852	" 5	" 7
1823	Aug. 14	" 19	1853	" 11	" 20
1824	" 12	" 29	1854	" 8	" 12
1825	July 23	" 1	1855	" 16	" 28
1826	" 15	Aug. 21	1856	" 7	" 9
1827	" 30	Sept. 3	1857	July 27	Aug. 25
1828	" 26	" 6	1858	" 19	" 27
1829	Aug. 3	" 30	1859	" 18	" 27
1830	" 3	" 27	1860	Aug. 27	Nov. 12
1831	July 30	" 15	1861	" 3	Aug. 31
1832	" 30	" 12	1862	" 12	Oct. 6
1833	" 29	" 3	1863	" 1	Sept. 17
1834	" 22	" 16	1864	July 27	Aug. 24
1835	" 27	" 2	1865	" 26	" 31
1836	Aug. 6	Oct. 15	1866	" 30	Oct. 11
1837	" 5	Sept. 8	1867	Aug. 8	Sept. 16
1838	" 11	" 15	1868	July 16	Aug. 22
1839	" 8	Oct. 8	1869	Aug. 2	Sept. 8
1840	July 31	Sept. 17	1870	July 25	Aug. 17
1841	Aug. 17	" 18	1871	Aug. 8	Sept. 13
1842	July 30	" 12	1872	July 31	" 11
1843	Aug. 15	" 18	1873	Aug. 1	" 15
1844	July 29	" 21	1874	July 22	Aug. 24
1845	Aug. 21	Oct. 13	1875	Aug. 2	Sept. 11
1846	July 18	Aug. 28	1876	" 1	" 13
1847	Aug. 3	" 25	1877	" 4	" 22
1848	July 31	Sept. 22	1878	" 2	" 13

ARTIFICIAL INCUBATION.

IT is now some time since we devoted several articles to the question of artificial incubation regarded from an historical point of view. Our object in collecting indisputable facts concerning its successful employment in times past, was to show that there was considerable *a priori* probability that in the future it might again be made of practical use to poultry breeders on a large, if not on a small scale. Pretty nearly all the well-authenticated cases of success had been on a large scale, and this left a doubt in our minds whether on a small scale it would ever be found to advance beyond the amusement of the fancier. At the time we did not follow up our general survey of these cases with any practical observations on the present methods of so hatching eggs. We are always unwilling to trust solely to information received from even the most trustworthy sources. We had no practical experience, but promised to publish the results of any which we might gain in the future. We have now personally managed a moderate-sized incubator with fair success during more than two months, and therefore think we may redeem a part at least of our pledge. Our wish had been to invest in a machine from each of the great incubator manufacturers, and to give them fair trials entirely under our personal management. We did not propose to publish the tabulated results unless some one incubator proved

itself incomparably superior to the rest. We know that many slight accidental circumstances which may easily be overlooked greatly affect both the register of temperatures and the general result; and it therefore seemed to us that the opinion of an unbiassed mind upon the merits and demerits of each incubator would be more valuable than published registers of their temperatures, in that a person who constantly watches them can make allowance for such accidents more fairly than their effect could possibly be explained. At present, unfortunately, from various circumstances, the chief of which was the inability this year to command a sufficient supply of water for hydro-incubators, we have tried but one. We shall not mention the name of the maker lest we should seem to advertise one machine before giving others a fair trial. It is an incubator, the water in which is heated by a lamp. It was in action about ten weeks, and almost the whole time under our own personal care. We had therefore full opportunity of making a few general mental conclusions, which it may not be useless to relate.

The first was, that while it was kept at as nearly as possible the generally received proper temperature—viz., about 102°, the eggs which hatched did so long after their due time—viz., at from the expiration of from twenty-three to twenty-five days. We subsequently kept the temperature at about 106°; the result was much better, and the time of hatching more normal. We found it best too to maintain this heat up to the last; when we lowered it chickens died in the shell which had already been heard to chirp strongly; when we kept it up weakly chicks seemed to receive a stimulus which helped them to come out.

Secondly, As to the question of moisture. We have all heard much of the absolute need of moisture, but we think that only those who have had practical experience of artificial incubation have any idea of the immense amount of moisture required—viz., that the eggs should be kept perpetually steaming. Certainly the spring was a remarkably dry one, but our incubator was in a decidedly damp place, partly underground. We began by keeping a trayful of earth perpetually moist underneath the eggs, and by damping them twice a day with tepid water. This was by no means sufficient; the greater portion of our first batch of eggs had perfectly formed chickens in them, but which died from either inability to break through the skins of the egg, which were almost as tough as casings of thin kid. We subsequently kept a large bath sponge in addition in a large earthenware saucer in the midst of the egg drawer; twice a day we filled the saucer with water. The sponge touching the hot cistern above caused so much evaporation that after twelve hours the water was often exhausted. The per-centage of chicks dead in the shell was then much less; still many so perished, and the eggshells of those which came out revealed the membrane still dry and harsh, and utterly different from those hatched under hens.

Thirdly, As to the much-debated point of the addition of more eggs during the time of incubation. We frequently added them, and so cannot fairly estimate the effect which the addition had upon the general success of our attempt. We are disposed to think that no great harm was done by it from the comparison of the results when eggs were more frequently and less frequently added; but this we noted, that in our machine, calculated to hold one hundred eggs, after the addition of thirty fresh eggs it was impossible to get up the average temperature within twelve hours. This must necessarily do some harm, which might, however, be much lessened if not obviated by the fresh eggs being warmed beforehand. This suggestion is not original, but one which we lately saw in the pages of a contemporary from the pen of one of our greatest authorities on the subject.

Fourthly, It is often inquired why so many chickens hatched in incubators come out cripples. The chief cause of this we believe to be the difficulty, already alluded to, of supplying sufficient moisture to the eggs. We closely watched many chicks during the process of self-extrication from the eggs; where the membranes were tough and hard it took a very long while, during all which time the legs were unnaturally cramped up after they ought to have been free—from this in some cases they never recovered. We believe that the struggling chick uses its hock joints much while twisting itself round in the egg, and for the final struggle to burst out of the shell. We observed many of our incubator-hatched chickens with hock joints largely swollen and purple with bruises.

Fifthly, Our experience coincided with that of other careful experimentors in incubation, that only those eggs can be at all depended upon to hatch well when artificially incubated, which in any case would be thought the most certain—viz., those lately laid, and those from vigorous birds, where few hens are allotted to one cock. To put in eggs which have been laid long, or which have travelled far, or which come from weakly parents, is abso-

lutely useless. To such the natural hen seems to supply some deficiency in a way which we cannot explain, and which is hardly likely to be artificially attainable. The time of year may seem a strange one to recur to incubators, but we would add one more piece of advice—viz., that those who wish to work them with success in the winter should procure them in good time, and thoroughly master their management in the autumn. We do not believe that any amount of care and intelligence can make it safe for a novice to put valuable eggs into an incubator within ten days of the time it is started. A month is a short time in which to study the various influences, atmospheric and others, which affect it, and to attain anything like proficiency in counterbalancing them.—C.

FOWLS DUSTING.

As most of the chickens hatched in 1880 are now become large birds, many runs are more crowded than early in the season; and this, combined with the hot weather, always favours the increase of vermin on the birds unless extra care is taken to prevent this from occurring. No plan we have tried is so good for keeping the birds clean and healthy as allowing them a good dust bath. There are various ways of making this, and also different ways of making them take to it. Briefly, it may be said, nothing is so good for the purpose as dry powdery ashes, taken from the ashpit before they have been wet, and put under a cover of some kind to prevent them from becoming so. One busbel or so of dry ashes will do for a dozen or more fowls dusting in for a considerable length of time, and when a little powdered sulphur is shaken over the heap occasionally it makes it sweeter and more effective. There is something, too, in the manner in putting down the ashes. We have had dry ashes lying under a dusting shed for a month or more without a bird attempting to take a roll in it, and all for the simple reason that the ashes were spread out level and not laid in a heap. When the same ashes were thrown up into a round mound there was a crowd round it in a short time scratching, and before long nothing but an intricate rolling mass of hens' tails, wings, heads, and feet. It is a curious circumstance, which I daresay many besides myself will have observed, that some fowls have very little inclination to scrape on the level ground, but as soon as an elevation of any loose matter is placed within their reach they go into it with energy, and this always induces fowls which are backward in dusting to pass through the cleansing process.—J. MUIR, *Margam, Taibach, South Wales.*

VARIETIES.

THE WHEAT CROP IN AMERICA.—A recent number of the *New York Tribune* states that "reaping will begin this week in central Minnesota, and it is now believed by well-informed persons that the yield in that State will reach 35,000,000 bushels, if no extended injury should be sustained within the next six days. One week ago, with over 60,000,000 bushels of the crop still in doubt, it was thought improbable that the aggregate yield would be reduced below 450,000,000 bushels. The probability now seems to be against a yield of less than 470,000,000 bushels, and competent statisticians maintain that, unless the weather during the next week causes serious injury, the yield will exceed 490,000,000 bushels."

— **THE PRICE OF MEAT.**—Mr. G. A. Haig, of Pen Ithon, Radnorshire, points out, in a letter to the *Times*, that in spite of the importation of American meat, the price of meat is as high now as it was five years ago, when not a word was said about "agricultural depression." He says:—"I have before me at this moment the *Agricultural Gazette* for July 21st, 1879, and for July 18th, 1874, and I find the quotations per stone of 8 lbs. in the Metropolitan Cattle Market to be as follows:—1879, best Scots, Herefords, &c., 5s. 8d. to 6s.; 1874, 5s. 6d. to 5s. 8d.; 1879, best shorthorns, 5s. 6d. to 5s. 8d.; 1874, 5s. 4d. to 5s. 6d.; 1879, second quality beasts, 4s. 4d. to 5s.; 1874, 4s. 4d. to 5s. So that beef at present is positively dearer than it was this time five years ago."

— **PREVENTION OF POTATO DISEASE.**—The well-known writer, Captain Mayne Reid, has been experimenting with Mexican seed Potatoes at his residence near Ross, thereby doubling his crop and entirely escaping the blight which has been so fatal to the English and Irish Potato crop of late years. He says that for the last three years he has been cultivating seed which came direct from Mexico, with the same result that, while ten other sorts, planted in the same

field, and tended with like care, have all been more or less diseased, his Mexican "papas" show not a spot of the blight. Nor is this all in their favour; for, while the best of the other kinds have yielded less than five tons to the acre, they have produced over ten in common drills done by the plough. Hundreds of specimens were above 1 lb. in weight, some even $1\frac{1}{2}$ lb. After being stored in ordinary field pits through the winter, the Mexican Potatoes come out perfectly sound, and seemed to improve in quality as the season advanced. As an article for the table Captain Reid thinks they have no superior; and he proposes the Government take in hand the importation of Mexican and Peruvian seed as a cure for the Potato blight.

— **THE HARVEST IN ITALY.**—A recent telegram from Naples states—Official harvest accounts after the heavy rainfalls report that the grain is in excellent condition. The Vines everywhere are most promising. There are good prospects for Hemp, Olives, and Beetroot. Only Maize is deficient on dry soils.

— **DAMAGE TO CROPS IN THE MIDLANDS.**—The recent storms and inundations in different parts of the midland districts have done considerable damage to the growing crops. Whole fields of Oats are in some places laid flat upon the ground, while Barley and other crops have suffered in like manner. Farmers are again lamenting their misfortunes, and the brilliant weather that succeeded the storms cannot make the harvest profitable.

— **AN AUSTRALIAN SHEEP STATION.**—Sir Samuel Wilson has sold one of his pastoral properties in New South Wales, consisting of about 3,000,000 acres of land, leased from the Crown, together with about a quarter of a million of sheep and some hundreds of cattle and horses. The station was sold for ten yearly payments of £40,000 each, to Messrs. McCaughey. This station was bought five years since for less than £100,000. The magnitude of the area of the station may be better understood when it is known that there are over 1300 miles of wire fencing on the station, although only about half the area is fenced into paddocks, as they are termed, varying in area from 500 to 60,000 acres.

— **THE YORKSHIRE HARVEST.**—The continuation of unfavourable weather, says the *Leeds Mercury*, leaves now no doubt that the year will be another bad one for farmers in the northern and eastern districts of Yorkshire. The laid Wheat is nearly worthless, and that standing is seriously affected both with rust and mildew, with about a third of deficiency of corns in the ear. Barley is in much the same condition as Wheat, and the prospect is that the general yield will turn out a little better than "screenings." Potatoes are now displaying all the worst symptoms. Turnips have suffered terribly, and cannot be more than half a crop. Mangolds are likewise doing badly, being festered with green maggot in the leaf. The general look-out for the farmers is of a very desponding character.

— **HOP PROSPECTS.**—The *South Eastern Gazette* publishes a series of reports on the condition of the Hop plant and the crop prospects. Summarised they give the following results:—Had it not been for an extraordinary attack of mould, such as has not been experienced for more than half a century, the crop would have been an unusually good one; but as it is the earliest will probably prove almost a failure, while the later sorts, if the weather is propitious, may yield a good crop of fair quality. In Mid-Kent the weight per acre will vary considerably, and correspondents set it at from 5 cwt. to 10 cwt. In North Kent the yield is expected to be heavier. In West Kent the crop is estimated at from 5 cwt. to 10 cwt., while from the Weald the report gives it at 10 cwt. per acre. Passing on to East Kent we find the crop to be, as indeed it is elsewhere, in a most critical state, depending altogether on the weather of the next few days; if it proves favourable a good average yield is anticipated. In the large Hop-growing district around Ashford 6 cwt. will probably be grown on the average; some gardens will produce 15 cwt. per acre, and others will not be worth picking. In the Isle of Thanet the crop will be heavy. The yield in Surrey is put at from 7 to 8 cwt., and advices from Worcestershire and Sussex speak of a more satisfactory crop than was anticipated ten days since.

— **PRICES OF WHEAT FROM 1641 TO 1875.**—The following list which has been sent to us by a celebrated agriculturist, shows the years in which Wheat has been at any given average price per quarter (omitting odd pence) from 1641 to 1875:—

Price.	Years.	Price.	Years.
22s.	1687, 1743, 1744	53s.	1679, 1697, 1757, 1768, 1797, 1823
23s.	1654, 1706, 1732		1853, 1861
24s.	1745	54s.	1790, 1846
25s.	1707, 1733	55s.	1837, 1862, 1863, 1874
26s.	1689, 1702, 1705, 1761	56s.	1694, 1699, 1821, 1858, 1871
28s.	1750	57s.	1641, 1658, 1675, 1842, 1872
29s.	1655, 1731	58s.	1659, 1803, 1826, 1827, 1832, 1873
30s.	1686, 1690, 1691, 1723, 1734, 1738, 1742, 1747, 1754, 1755	59s.	1643
31s.	1653, 1719	60s.	1642, 1693, 1698, 1828
32s.	1666, 1667, 1703, 1720, 1722, 1724, 1730, 1748, 1749	61s.	1644, 1674
33s.	1676, 1701, 1721, 1737, 1760, 1779	62s.	1661, 1804
34s.	1718, 1739, 1746, 1751, 1762	63s.	1696, 1824, 1868
35s.	1688, 1683, 1700, 1736, 1759, 1780	64s.	1830, 1838, 1841, 1867
36s.	1664, 1672, 1708, 1763	65s.	1647, 1651, 1662, 1815
37s.	1670, 1671, 1677, 1727, 1752	66s.	1829, 1831, 1840
38s.	1656, 1715, 1735, 1776, 1786, 1851	67s.	1820
39s.	1669, 1682, 1684, 1753, 1835	68s.	1650, 1825
40s.	1680, 1688, 1717, 1726, 1756, 1769, 1850	69s.	1709, 1710, 1799, 1802, 1847, 1857
41s.	1657, 1673, 1681, 1685, 1692, 1704, 1712, 1729, 1741, 1764, 1787, 1852, 1855	70s.	1839
42s.	1646, 1716, 1778	71s.	1649
43s.	1665, 1725, 1766, 1770, 1792, 1860	72s.	1854
44s.	1652, 1714, 1758, 1781, 1822, 1849, 1859, 1864	74s.	1814, 1819, 1855, 1856
45s.	1713, 1740, 1777, 1788, 1875	75s.	1648, 1795, 1807
46s.	1834, 1870	78s.	1796, 1816
47s.	1695, 1767, 1771, 1782	79s.	1806
48s.	1711, 1728, 1765, 1775, 1784, 1791, 1836, 1869	81s.	1808
49s.	1793, 1866	86s.	1818
50s.	1660, 1663, 1772, 1843, 1845, 1848	89s.	1805
51s.	1645, 1773, 1785, 1789, 1798, 1844	95s.	1811
52s.	1678, 1774, 1783, 1794, 1833	96s.	1817
		97s.	1809
		106s.	1810
		109s.	1813
		113s.	1800
		119s.	1801
		126s.	1812

— **NEW WHEAT.**—New Wheat has been offered at Colchester, Dorchester, and other markets, and the samples not being very firm only 48s. per quarter could be obtained for the produce.

COMB FOUNDATION.

A COMMUNICATION from your correspondent "B. & W." which appeared in a recent issue of the Journal induces me again to take up my pen on the subject of comb foundation. First let me say that there is one reference to my former letter which is misleading—viz., "After seven years of comparative failure he at last attained to that perfect success." Now my letter has reference to only three years of experiment with comb foundation, the seven years previous with guide combs, which were a failure. I distinctly stated that my first experience with Raitt's or any deep sheet of foundation was in 1878, and that from the first I have had but one breakdown and no crooked combs or curled corners.

Now, without the slightest expectation of earning the enviable name of "benefactor" to my apiarian brethren, I have much pleasure in giving my simple *modus operandi*, whatever it may be worth. First, the groove in the top bar of my frame is one-eighth of an inch deep and wide, cut with a plough plane. Second, a piece of lath half an inch square and long enough to fit so tightly across the frame as to bear the weight of the foundation when it is laid on it. Third, to prevent curling I drive two tin points (such as we use in fixing glass in outer sections) into the styles or upright ends of frame about $1\frac{1}{2}$ inch from the bottom bar and one-eighth inch apart, so that the foundation may hang loosely between them. The frame being thus prepared I cut the upper edge of the foundation to the exact shape of the under or grooved side of the top rail, so that when laid in the groove it shall lie evenly and closely along it. I then lay it on the crossrail between the points and in the groove, and, inclining the frame so that the foundation may rest against the crossbars, I pour in boiling wax, filling and slightly overflowing the groove. When cool turn the frame, and the ends being supported by the points the centre needs only a finger to secure the foundation from suffering from being put out of the perpendicular to wax the other side. All that is to be attended to after this is never to put the frame out of perpendicular unless while the foundation rests against the crossbar, which a slight touch will remove while holding the frame perpendicular when putting it into its box hive, and giving all possible ventilation below and above for twenty-four hours after hiving a swarm. I use, instead of quilt or board, only a strainer cloth on the top for that time, which allows the excessive heat which attends swarming or other excitement to escape in some measure. I deem this of great importance.

Having now as requested "plainly and minutely described"—

I fear with much prolixity—my system of foundation-fixing, I venture to give an instance of the tenacity of comb foundation when well fixed which occurred early in last June in my apiary. I was removing some frames of comb filled with honey to make room for brood, replacing those taken by foundation. On removal of my veil I found that one of the frames was filled with sealed brood and not honey, and accordingly I hastened to restore it to its place; but on taking up the frame of foundation which I had substituted for it I found it covered with bees, and in a moment of thoughtlessness I shook or rather jerked the frame to shake them off, with the result of twisting the foundation into the form of the letter S without in the least dislocating it from its attachment to the top bar, and by merely flattening it again gave it to another hive.

Now Mr. Cheshire and Mr. Raitt can answer for themselves why they have endeavoured "to strengthen foundation;" but it strikes me that the public craving for novelties on one hand, and the desire on the other of some material so prepared as to defy careless handling, may have some part in the matter; but I doubt whether either has experienced the failures your correspondent alludes to. I conclude by saying that I have had the satisfaction this week of having had my apiary inspected by Messrs. Abbott and Mr. Carr of Newton Heath, Manchester, who have seen all that I have stated as to the safety and perfect comb formation of Raitt's foundation, which is the only one I have written about. The above gentlemen have been in Clonmel conducting the bee department of the Royal Agricultural Society's Show.—GEORGE A. PROCTER, *Clerk*.

TENT OF THE BRITISH BEE-KEEPERS' ASSOCIATION AT CLONMEL.

THIS was one of the great attractions of the splendid Show just concluded here that had immense interest for everyone who knew anything of or had bees themselves, and in many instances for city folk, who perhaps never saw a colony of bees before, and who amused me by their curious questions, the principal of which had reference to their stinging propensities. I can readily imagine how your correspondent, Mr. Pettigrew, would have chuckled over some of the queries, or would have enjoyed Mr. Carr's curious expedient for expelling young urchins who peeped in under the bee tent by taking a handful of bees and depositing them on their heads. Clonmel was to be the first introduction of the bee tent in a tour through Ireland from London, but by some curious mischance the "cockneys" sent in charge went astray, and so far neither has turned up; but Mr. Carr (lecturer) and Mr. Abbott (operator) were not to be discouraged, so they procured stocks from a noted bee man of the locality, and all went well. A "Cyprian queen" was telegraphed for, and arrived in an oblong box attended by some of her satellites, who, we understood, fed her on the way. One of the most interesting experiments performed, and indeed the principal object of the Bee Association, was to show how a colony of bees could be removed from a hive and transferred to a new one (or if late in the year located and fed with another colony) without having recourse to the barbarous custom of "smothering" with sulphur. This was done by a little smoke introduced among the bees—any smoke would do—and the hive gently tapped until the occupants moved out into a skep placed over it, or into another hive of the present year's swarming. When asked if the two queens would live together he said the stronger would be proclaimed empress, and the weaker killed and expelled. After many interesting experiments, and showing the fearless way bees may be dealt with, the method of extracting honey from the combs, and much valuable information, thousands of visitors were deeply interested.—W. J. M., *Clonmel*.

OUR LETTER BOX.

Lime for Preserving Eggs (*W. P. B.*).—The term "shell," as applied to lime, merely signifies that the lime is not slacked or in a state of powder, but is in lumps, and then widely known as shell lime. The "two shells" of lime might be read as two lumps, which of the ordinary size, weighing say about 1 lb. each, are more than 4 gallons of water can absorb, and twice the quantity would not make the lime water any stronger. The recipe we published is of proved efficacy.

Dark Comb (*M. B. D.*).—The dark colour of the comb is the result of age. We presume you do not find the new comb of this season of the same dark colour.

Bees—Various (*Tom*).—In reply to your queries taken in order, we have to say—1, An entire comb, "all capped honey," taken from the centre of a first swarm is not an unusual thing in fine seasons at this time of year. This year there has been a glut of honey in many parts of England, and after midsummer, when this occurs, bees will sacrifice everything to the paramount duty of providing room for their winter stores. We have known them clear away eggs and brood to make way for honey. 2, Your plan is a good one; nor is there any reason why you should not treat all your hives in this manner. If we mistake

not this will be the common practice in all well-managed apiaries in the future—a mark of "high farming" in bee matters. Take all the honey when a good price can be got for it, and supply its place with sugar syrup. 3, In this case we do not advise your trying to rear the stock in which the bees have been dwindling all the summer, even though they now have a breeding queen, unless you strengthen them largely by the addition of one or more lots of bees saved from the brimstone pits. 4, There is no objection to your feeding-on now such of your hives as you wish to fill with comb, especially if you supply them with bar frames and comb foundation. Feeding now will also stimulate present breeding. Perhaps we should prefer waiting till September.

Artificial Swarming (*Ten-years Subscriber*).—We should not advise you to disturb your bees at this season. The large quantity of bees that were outside the stock hive were no doubt driven out by the excessive heat of the last ten days. We have found this the case in our own apiary, where in every hive the bees hung out as if they were going to swarm. Your other question shall be answered next week.

Bees Attacked by Wasps (*S. W.*).—If the hive be still populous the bees will probably hold their own, by your simply contracting the entrance so as to admit of the passage only of a single bee. If it be weak, the entrance should also be contracted, but the attack should be eluded by removing the colony to a new situation at a distance of not less than a mile and a half. In a few weeks the autumnal frosts will probably rid you of the plague of wasps, and then the persecuted bees may be restored to their original position.

Feeding Driven Bees (*Lex*).—If you do not mind the trouble and expense of the copious feeding necessary to enable the bees to furnish their hives with combs, and store these combs with food before winter, you may do as you propose. You had better permit your old stock to swarm next summer, and unite it to the swarm by driving in the autumn, or drive and unite the bees to another stock if you are desirous of breaking it up at once.

Kerry Cows (*J. H. B.*).—We believe the price of the cows you refer to in your letter varies according to the condition of the animal. Those in calf with first calf are £14, and those in milk after first calf £15 on the average.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1880.		Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
August.			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Sun.	8	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
										0.196	
Sun.	8	29.584	62.4	56.4	N.W.	60.3	68.7	52.1	123.4	49.7	
Mon.	9	29.995	62.8	58.4	W.	60.0	77.7	49.0	130.3	46.3	
Tues.	10	30.292	67.7	60.3	N.W.	60.8	79.3	52.0	127.9	48.4	
Wed.	11	30.257	70.4	61.5	N.	62.7	79.7	58.0	128.7	52.4	
Thurs.	12	30.208	64.7	60.4	N.	63.4	77.3	56.3	131.0	52.2	
Friday	13	30.122	62.6	60.1	N.	63.7	79.5	58.6	126.4	57.2	
Satur.	14	30.096	61.7	59.6	N.E.	64.4	75.4	58.8	131.4	56.6	
Means.		30.079	64.6	59.5		62.2	76.8	55.0	128.4	51.8	
										0.196	

REMARKS.

8th.—Stormy morning, with heavy showers and occasional glimpses of sunshine; fine bright afternoon and evening.
9th.—Fine bright warm day with pleasant breeze.
10th.—Fine, bright, and hot; almost unbroken sunshine the whole day, but pleasant breezes.
11th.—Fine, bright, and hot, but a good deal of cloud in afternoon and evening.
12th.—Beautiful summer day, sunshine a little broken by cloud in afternoon.
13th.—Cloudy and dull till about 11 A.M., afterwards fine, bright, and hot.
14th.—Dull morning, fine bright afternoon, cloudy evening.
A week of fine summer weather, the heat mitigated by pleasant breezes. Temperature considerably above that of last week, and higher than that of any other week this year.—G. J. SYMONS.

COVENT GARDEN MARKET.—AUGUST 18.

THERE is no quotable alteration in the trade since last week, and trade remains quiet.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½ sieve	2	6	to 4 6	Nectarines.....	dozen	2	0	to 8 0
Apricots.....	box	1	0	2 6	Oranges.....	£ 100	4	0	12 0
Cherries.....	½ lb.	0	0	0 6	Peaches.....	dozen	3	0	10 0
Chestnuts.....	bushel	12	0	16 0	Pears, kitchen ..	dozen	0	6	0 0
Figs.....	dozen	2	0	4 0	dessert.....	dozen	2	0	3 0
Filberts.....	½ lb.	0	0	1 0	Pine Apples	½ lb.	1	0	2 0
Cobs.....	½ lb.	0	0	1 0	Plums.....	½ sieve	2	6	4 0
Gooseberries ..	½ sieve	2	6	4 0	Raspberries	½ lb.	0	3	0 6
Grapes.....	½ lb.	0	9	3 0	Strawberries ...	½ lb.	0	6	1 0
Lemons.....	£ 100	6	0	10 0	Walnuts.....	bushel	0	0	0 0
Melons.....	each	2	0	4 0	ditto.....	£ 100	0	0	0 0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0	to 4 0	Mushrooms.....	dozen	1	0	to 1 6
Asparagus.....	bundle	0	0	0 0	Mustard & Cress ..	punnet	0	2	0 3
Beans, Kidney....	½ lb.	0	0	0 6	Onions.....	bushel	3	6	5 0
Beet, Red.....	dozen	1	0	2 0	pickling.....	quart	0	0	0 0
Broccoli.....	bundle	0	9	1 6	Parsley..... doz.	bunches	6	0	0 0
Brussels Sprouts..	½ sieve	0	0	0 0	Parsnips.....	dozen	1	0	2 0
Cabbage.....	dozen	0	6	1 0	Peas.....	quart	0	9	1 0
Carrots.....	bunch	0	4	0 6	Potatoes.....	bushel	3	9	4 0
Caulicums.....	£ 100	1	6	2 0	Kidney.....	bushel	4	0	0 0
Cauliflowers.....	dozen	0	0	3 6	Radishes..... doz.	bunches	1	6	2 6
Celery.....	bundle	1	6	2 0	Rhubarb.....	bundle	0	4	0 0
Coleworts..... doz.	bunches	2	0	4 0	Salsafy.....	bundle	1	0	0 0
Cucumbers.....	each	0	4	0 6	Scorzoner.....	bundle	1	6	0 0
Endive.....	dozen	1	0	2 0	Seakale.....	basket	0	0	0 0
Fennel.....	bunch	0	3	0 0	Shallots.....	½ lb.	0	3	0 0
Garlic.....	½ lb.	0	6	0 0	Spinach.....	bushel	3	0	0 0
Herbs.....	bunch	0	2	0 0	Turnips.....	bunch	0	4	0 0
Leks.....	bunch	0	0	4 0	Vegetable Marrows	each	0	2	0 0



26th	TH	Crystal Palace Fruit Show closes.
27th	F	Craven Agricultural Show.
28th	S	Halifax Horticultural Show.
29th	SUN	14TH SUNDAY AFTER TRINITY.
30th	M	
31st	TU	Banbury Horticultural Exhibition.
1st	W	Sale of Plants at the Ferneries, Farnworth, Warrington.

TOMATO CULTURE.

THE Tomato has long been cultivated in the gardens of the richer classes, but not to any great extent, and in the majority of cases the only attempt to secure a crop consisted merely of raising plants and planting them at the base of walls. If they succeeded, so much the better ; and if they partially or completely failed, then Tomato sauce had more or less to be dispensed with. A complete revolution, however, is being very rapidly effected, and not only is it incumbent on those in charge of large gardens to maintain a supply of good fruit, but the owners of smaller gardens, amateurs, and even cottagers, are also acquiring a taste for Tomatoes. This, in my opinion, very satisfactory state of affairs, may be accounted for in several ways, the most important probably being the undoubted superiority of the varieties of modern introduction, more especially those of American origin. These are particularly good eaten as a salad in an uncooked state, and, much as some epicures may like Tomato sauce, they will dispense with this rather than the salad.

Many, owing to the uncertainty of the outdoor crop, are now turning their attention to the growth of Tomatoes under glass, and I see no reason why they should not so be grown in every garden with any pretence to the name. Room is found for and much time and trouble is spent over a crop of Cucumbers, which are really unwholesome ; or Melons, which unless well grown are very unsatisfactory ; then why not grow fewer of these and substitute Tomatoes ? They can be grown in frames much more easily than either, and if grown in houses are certainly more ornamental. By all means grow them in the open air as heretofore, regarding them as a supplementary crop, to be appreciated if a success, and, if a failure, not such an inconvenience as of old. At the present time I have a few fruits left on plants in a plant stove, a great quantity to follow these in a cool plant house—the plants in pots in both instances, a number of dwarf plants bearing heavy crops in a cold pit previously occupied with early Cauliflowers, more at the base of walls, and a number planted in a south border and trained up stakes. Neither of the two latter is affected either by the late dull wet weather or the disease, which is either the natural result of such weather, or, as savants have it, really the Potato fungus disseminated in the form of “spore-laden air sweeping over the earth.” This theory, however, has yet to be proved ; but if correct the question arises, Are there separate waves for both Tomatoes and Potatoes ? The latter are as bad as can well be, but we as yet hear no complaints about the former.

It is not my intention at the present time to refer at any length to any of the above crops, as they may advantageously be left to a more seasonable date, but I will offer remarks on the cultivation of Tomatoes during the winter that may possibly be of some use to the inexperienced.

Tomatoes are really of very easy culture, and are of a very accommodating nature—that is, they can be grown in a variety of positions, and if a few important details are closely observed success is certain in every instance. In the spring and summer they are grown here both in boxes and large and small pots under glass, and are either trained perpendicularly up stakes or wires at the ends of Peach and plant houses or vineries, thinly at intervals round the sides of a high plant house, or up the roof of a low plant house. I have also had good crops from plants trained to the back walls of a vinery, but in this instance the Vines had not filled the house, and care was taken not to crowd the plants. Bottom heat is not really necessary, but I like to have the earliest crops near the hot-water pipes.

Strong plants in pots in a cool house which is closed rather early in the afternoon have been stopped beyond the third cluster of fruit, and will now be allowed to make a single strong shoot near the top, to be stopped beyond the second bunch of bloom it will form. By the time these blooms are fairly set the first crop will be nearly or quite matured, and after some of the old soil in the pots has been removed, and a liberal top-dressing given, the whole batch will be placed in a plant stove, the temperature of which, although never high, is seldom allowed to fall below 60°. The pots will stand on a staging about 12 inches above the hot-water pipes, and the plants be trained up the highest part of a trellis at present occupied by Melons. To keep up the supply through the winter a number of plants obtained from cuttings which are now being struck, are grown on and trained-up the bared stems of the older plants, thus avoiding injury to the ordinary occupants of the rest of the staging, the plants being potted singly in large pots and arranged in one line only.

Plants raised from cuttings are not preferred to seedlings, but when strong well-matured growth can be obtained cuttings strike readily in a little heat and make good plants. My cuttings are taken from the tops of pinched-back plants, a little of the old wood being retained, as strong sappy shoots taken off without this precaution are apt to damp off. About five are placed near the sides of a 6-inch pot, in moderately fine soil. The pots are placed in a Cucumber frame, and the cuttings shaded slightly till rooted. They are then potted-off into 5-inch pots, and returned to the frame till established, and are then without delay well exposed to the sun on the front staging of a Peach house. Before becoming root-bound they receive their final shift into either 10 or 12-inch pots, the soil employed consisting of two parts of rough turfy loam to one of roughly chopped decomposed manure. A moderate amount of drainage is employed, and this is covered with the roughest of the soil. The plants are potted firmly and deeply, the pots being only about three parts filled to admit of a good top-dressing being given later on. On these young plants again I like to have a cluster of fruit set before they are placed in a higher temperature, but they are not left in the Peach house later than September, or a check to the growth is the consequence. One stem only is allowed wherever the Tomatoes are grown, and no laterals are permitted to form (an important detail not so

strictly observed by many as it should be), unless the plants are weak. In this case, especially if the plants have been for some time in small pots, the foliage is not sufficiently strong to swell the stems, and it is, therefore, advisable to allow the formation of laterals, these to be pinched back to one joint.

At the time the autumn-struck plants are transferred to the stove the top-dressing is given, into which the stems quickly emit numbers of strong roots, which will greatly assist the swelling fruit. By the time the third bunches of bloom are developed the growth will have reached the prescribed limits and is topped accordingly, and as the laterals or sub-laterals are kept rigorously rubbed out, the whole strength of the plants is thus concentrated on the fruit. They are never allowed to become dry at the roots, and liquid manure is given at each alternate watering. Some varieties, notably The Trophy, do not set freely either in heat or in the open air—not, I think, because the blooms are really barren, but on account of a scarcity of pollen. I never leave their setting to chance, but prefer impregnating the blooms with the pollen of commoner freer-setting varieties, such as Keyes' Prolific and The Conqueror. In the spring months, however, the central parts of the blooms when dry are gently rubbed together, each fruit thus being set by its neighbour. So well do both plans succeed, that to have good fruit I usually find it necessary to thin out the bunches. Forced fruits are apt to crack when changing colour. Dryness at the roots checks this but injures the later fruit; and the best plan is to cut them on the first signs of cracking, as they will ripen well on a dry shelf in the same house or temperature.

This season, probably, we shall have sufficient fruit from the open-air plants to carry us well on towards the new year, but they are of inferior quality, especially those cut in a semi-green state and ripened in heat, to those grown under glass, and will be handed over to the cook for making into sauce. Trophy and a variety evidently selected from it are mostly grown under glass here, as they are much superior with regard to shape, size, colour, and quality to any variety that I am acquainted with, with the exception, perhaps, of Hathaway's Excelsior. The latter is well adapted for culture in pots, and is preferred by some to the two former, and it certainly is particularly good for open air culture. In addition to these I am growing both under glass and in the open nearly every catalogued variety, and am in a position to discuss their merits, for the former work at all events.

Grown under precisely the same conditions as the rest, Early Gem was the first to ripen by about a week; it is a good cropper, but unfortunately the fruits are small. Conqueror is a very heavy cropper, growth sturdy, and the fruit corrugated, but otherwise good; Earley's Defiance, a superior form of the Large Red; Dwarf Orangefield; Vilmorin's Dwarf Early, a very dwarf, free-bearing, and improved form of the Orangefield, and a variety certainly deserving of general cultivation; Ne Plus Ultra, a vigorous grower, shy-bearing, and round-fruited; Early Red and Large Yellow. All commenced ripening at much the same time. The preference is given to the first, second, and fifth in this batch. Scarcely a week behind these are Trophy, Stamfordian, Hathaway's Excelsior, Vick's Criterion, Acme, Carter's Green Gage, and Hepper's Goliath. About these I will only mention that Vick's Criterion, a somewhat small but very free-bearing variety, is particularly well adapted for culture in small pots, and that the principal merits of the Green Gage are its distinct colour and pleasing flavour. The small-fruited varieties are extremely ornamental, but otherwise comparatively of little value. Of those I am growing the Cherry Red and the Burghley Pet, both very prolific, round-fruited, and of pleasing flavour; Dickson's Queen of the Tomatoes has pear-shaped fruit produced in large clusters; Nesbit's Victoria, plum-shaped fruit, prolific; Grape-shot and Sutton's Royal Cluster represent an improved form of the Red Currant.—W. IGGULDEN.

CATTLEYA CRISPA.—I see mentioned in your paper a fine plant of *Cattleya crispa* at Burston Rectory, with sixteen flower spikes and eighty-four blooms. I have a plant now in flower with nineteen spikes, and 111 blooms, made up thus—two spikes seven each, twelve spikes six each, and five spikes five each. Un-

fortunately one other flower spike was broken off some three months ago. There are several of the old growths that have this year thrown up two growths, and are not strong enough to flower. I hope to see next year many more flower spikes. The plant grows in a basket 18 inches square, and is full of pseudo-bulbs, spreading out nearly 4 feet all round. I should say there are about 150 pseudo-bulbs on the plant, but I have never counted them carefully. It quite fills the house it is in with perfume.—B. DYMOND.

THE VINE TORTRIX.

ALTHOUGH there is no truth in the supposed adage that "misfortunes never come singly," the coincidences in trouble that do occur are sometimes remarkable. We have recently had to chronicle another appearance of the much-dreaded Phylloxera in these islands, and now we find that serious damage has been done to some Vines by the larva of *Tortrix vitisana*. This has, however, long been recognised as a British insect, but little is yet known of its habits by either naturalists or gardeners. It has been discovered upon the bunches, attacking these not for the sake of the fruit, which is pierced to enable the larva to reach the seeds. In habit it appears to be semi-social, and a number of them will spin loose threads upon the branches, upon which they pass and re-pass. Probably during its early life as larva the species feeds upon the leaves of the Vine. The chrysalis state is of brief duration, and the moth emerges in August. This is not, unfortunately, a conspicuous insect; it belongs to the section of moths popularly called Bell moths, because the closed wings resemble a bell. The expansion of the wings is about three-quarters of an inch. An important check to the progress of the species would be the removal or destruction of the eggs, which are undoubtedly deposited about this time, probably in small patches, however long they may remain unhatched. They might be placed either upon the leaves or upon the twigs, and should be searched for with assiduity. It has been generally thought that this Vine pest dislikes heat, and is therefore not likely to do much injury under glass; but we have recently seen a grand crop of Grapes in a very large vinery practically ruined by the larvae puncturing the berries and causing their decay. We have never known of a similarly violent attack of this insect, and we allude to it now for the purpose of directing attention to an insidious pest, which if it spreads cannot fail to prove highly destructive. Where the caterpillars are disturbed in the bunches, and they are not easy to find, they suddenly let themselves down to the ground by a slender thread and find refuge in the soil.

OLD-FASHIONED GARDEN ROSES.

NOTWITHSTANDING the prevailing rage for such varieties of Roses only as are deemed suitable for exhibition purposes there are, I venture to say, many rosarians who view with some considerable regret the gradual extinction of so many grand old favourites among the summer Roses. It is true that their individual blooms are not to be compared either in size or shape with the magnificent Hybrid Perpetuals of the present day; but in colour, and equally in perfume, summer-flowering Roses can well hold their own, while for vigour of constitution and profusion of bloom they certainly stand unequalled. It is more than probable that Roses of this class will, like the long-neglected hardy herbaceous plants, become fashionable again for garden decoration, as indeed they well deserve; but meanwhile we are losing sight of many varieties which ought to be preserved. Some time since I started a collection of old-fashioned Roses, but lost a large number in moving them to another residence; now again I mean to make the attempt, and invite all brother rosarians similarly interested to co-operate with me. I need hardly add that buds of scarce and really desirable varieties will be gratefully received and as freely given when possessed by me.

The following varieties are, I believe, still to be found in some of the nurserymen's lists, and should find places in most gardens of any extent, where they will succeed admirably, most of them, as pillars or tall standards, and will be found to produce, with a little care and attention and a minimum amount of pruning, an exceedingly beautiful effect. Among the section known as *French*, *Boule de Nanteuil*, *Kean*, *Cynthia*, *D'Aguesseau*, *Ohl*, and *Letitia*. *Hybrid China*: *Blairii II.*, *Brennus*, *Chénédolé*, *Comtesse de Laccpède*, *Fulgens*, *Leopold de Bauffremont*, *Madame Plantier*, *Magna Rosea*, *Général Jacqueminot*, and *Madeline*. *Alba*: *Félicité*, and *Madame Audôt*. *Damask*: *La Ville de Bruxelles*, *Madame Hardy*, *Madame Zoutmann*, and *Leda*. *Hybrid Bourbon*: *Charles Lawson*, *Juno*, *Coupe d'Hébé*, *Paul Perras*, and *Paul Ricaut*. *Provence*: *Old Cabbage*. *Moss*: *Baronne de Wassanaër*, *Common*, the *Crested*, *Lanei*, and *White Bath*. *Austrian Briar*:

Persian Yellow; and lastly many beautiful *Climbers*, such as Bennett's Seedling, Madame D'Arblay, The Garland, Félicité Perpétué, Crimson Boursault, &c.

But where can we find old favourites such as the following, consigned, most of them long since, to oblivion by the published trade lists? Do any of them still flourish in an obscure nook of some rambling garden? If so, are they known by name? Not one of these have I been able to procure, though I would fain grow them all. *Hybrid China*: Beauty of Billiard (most glowing crimson), De Candolle, George IV., Belle Marie, Duke of Devonshire, Charles Fouquier, Marie de Champlonis, and Gloire de Coulaine. *Hybrid Bourbon*: Charles Duval, Le Capitaine Sisolet, Hortensia (a somewhat single flower, colour salmon pink, with a very peculiar aromatic perfume), Glorieux, La Dauphine, Comte Boubert, Miss Chauncey, and Henri Barbet. *Hybrid Provence*: Princess Clementine (very beautiful white), Comte Plater, Comtesse de Segur, Globe Hip, and Rose Devigne. *French*: Aspasic, Gloire de Colmar, Napoleon, Telemaque, Triomphe de Jausse, Schombrunn, and Old Tuscany. Can anyone give me information as to these or other good old Roses? I shall welcome any correspondence on the subject, and hope at some future time to recur to it in these columns.—JULIUS SLADDEN, *Badsey, Worcestershire*.

ABOUT POTATOES.

THE state of the Potato crops throughout the country is always a matter of concern at this season of the year, the crop of the present season being no exception to the rule. The growth of the Shaws has been extraordinary as a rule, dwarf-growing varieties like the Regent rivalling the Champion of ordinary seasons, though this year these latter are far ahead of anything I have ever seen in the way of haulm growth. Regents are now full grown and a good crop; Victorias are also a good crop, but not quite finished yet, while Champions have much growth to make, and unless we have a downpour of rain it is not likely that the latter will swell off their crop at all, as the fields are very dry. I was inspecting some yesterday, lifting individual plants over the field, and already the disease has made a commencement on the Regents. This is attributable to two or three days of drizzling rain we experienced at the beginning of the present week, which laid the foliage and tubers at the same time open to the attack of the disease.

If the weather continues dry the progress of the disease will be arrested, but if wet supervenes then the crop will be decimated. And here we arrive at some of the so-called means for saving crops. One says, Lift as soon as the tubers are large enough, no matter whether the disease has appeared or not. Another tells us to draw the haulm directly the fatal spot shows itself, and the crop will remain secure in the earth. Others are of opinion that it is no use trying to save the crop by these means, it being far better to let the disease run its course on the tubers that have been tainted, and lift when the cold has put a stop to its ravages. There will doubtless be something to be said in favour of one and all of these systems, otherwise growers would not favour them. In the matter of the last-mentioned I have no personal experience, although it is the opinion of many practical farmers that it is useless to combat the disease or to lift the crop until it has done its worst, the taint of the disease otherwise making itself felt long after the Potatoes are clamped. This may be a mistake, but it remains an opinion practically backed up by pounds, shillings, and pence, by men whose income depends very greatly on the saving of their Potato crops. My own experience of the other systems is that they cannot be depended on to keep the crop clear. Every year our Potatoes are lifted directly the tubers are large enough in order to have the ground for other crops, and every year we find the disease appear after the crops have been lifted, though there may not have been the slightest appearance of it when lifting. I have had some varieties entirely destroyed, not even a remnant having been saved for seed; and these lifted before the disease was seen in the locality. The same thing is occurring this year. Some of our stocks lifted in the best apparent health in the first week of August are now becoming spotted. We have lifted others since which had the haulm removed at the beginning of the month; these have turned out perfectly free from disease, but I shall not be at all surprised when they are uncovered to find the disease amongst them.

The only Potatoes I find reliable are early kidneys; these never go wrong with us, though it must be noted that they are grown on a warm and dry border. Myatt's Kidney and Mona's Pride are the best croppers here. I grow a few each of a large number of varieties, but do not find any for main crops for gardens better than these two and the White Don. Doubtless other gardeners have their favourite varieties which suit their particular soils better than these.

And so it is perhaps in the matter of checking or stopping, or may be entirely frustrating the Potato disease. What may be successful with one grower may entirely fail under changed conditions. Anyway this is one of those subtle things which it does not do to dogmatise about. Let us try by all means every possible deterrent or eradicator of the disease, but do not be over-sanguine of success with any of them.—R. P. B.

SHROPSHIRE FLORAL AND HORTICULTURAL SOCIETY.—AUGUST 18TH AND 19TH.

THIS Society held their annual Show under much more favourable conditions than last year. The Exhibition on the whole was a great improvement upon those of past years both in the quality and quantity of the exhibits, and this without doubt is by far the best Show held at Shrewsbury under the management of the present Committee. It is scarcely necessary to allude to the excellent condition in which the plants were shown when it is stated Messrs. Cypher and Tudgey were competing for the principal prizes. In Mr. Cypher's collection *Erica æmula* was an excellent plant, the most profusely flowered example we have ever seen exhibited. The *Dracænas* shown by Lord Hill, Hawkstone (Mr. Pratt, gardener), were worthy of special note, also the table plants shown by the same exhibitor. The schedule contained twenty-seven plant classes, ten classes for fruit, and an additional prize of £10 given by Lord Hill for a collection of Grapes, and fourteen for vegetables.

Store and Greenhouse Plants.—In the class for twenty specimens, ten flowering and ten foliage, Mr. F. Cypher, Cheltenham, took the lead, followed by J. G. F. Williams, Esq. (Mr. Tudgey). Those staged in the first-prize collection were fresh, and on the whole larger than the others, Mr. Cypher's collection being very strong in flowering plants, and comprised a fine *Stephanotis floribunda*, well bloomed and about 5 feet through; *Erica Thomsoni*, well bloomed and 6 feet in diameter; *Anthurium Schertzerianum*, *Lapageria alba*, *Erica Irbyana*, *Bougainvillea glabra*, all good plants, the latter 7 feet in diameter; *Ixora Fraserii*, *Erica æmula*, and *Dipladenia amabilis* were all plants in excellent condition and profusely flowered. The best of the fine-foliaged plants were *Cordyline indivisa*, *Latania borbonica*, *Areca lutescens*, *Cycas intermedia*, *Gleichenia flabellata*, *Croton majesticus*, *C. Wicmani*, and *C. Disraeli*, which were well coloured. The most noteworthy of Mr. Tudgey's plants were *Erica Uhria superba*, 6 feet in diameter, excellent; *Croton Johannis*, fine colour, and *Cycas revoluta*, *Latania borbonica*, *Cycas circinalis*, *Ixora coccinea*, *Croton Andreanus*, very good. In the class for nine plants, five in bloom, Mrs. Tuson, Abbey Foregate (Mr. Farrant), was first with fine plants of *Ixora floribunda*, *Erica Shannoni*, *Clerodendron Balfourianum*, and *Croton pictus*, this collection was rather weak in foliage plants; Lord Hill, Hawkstone (Mr. Pratt), being placed second, and was much stronger than his opponents in foliage plants, his best plant being *Nepenthes Hookeri*. *Croton Queen Victoria* and *C. Wicmanii* were good, also *Alocasia metallica*. Sir T. Meyrick, Bart., Appley Castle (Mr. Warrender), was placed third with a small but even collection. In the class for six Cape Heaths, distinct, Mr. Cypher was again first with small well-bloomed plants of *Erica Vernoni*, *E. Irbyana*, *E. Austinana*, *E. Turnbulli*. Mr. Tudgey was second with larger but rather uneven plants, the best being *E. Uhria superba*, *E. tricolor*, *E. Eppsi*, and *E. ampullacea Williamsi*. In the class for six Palms, distinct, there were four exhibitors—Mr. Cypher being first with clean, fresh, and well-grown plants, such as *Kentia Fosteriana*, *Kentia canterburyana*, and *Cocos Weddelliana*. Mr. Williams second with much larger plants of *Kentia australis* and *Geonoma princeps*. Mr. Pratt third with neat specimens.

For six *Dracænas* Mr. Pratt was first with excellent plants of *D. regina*, *D. amabilis*, *D. Taylori*, *D. Baptisti*, *D. Mooreana*, and *D. Dennisoni*; second Mr. Warrender with small but neat plants of *D. Fraseri*, *D. Chelsoni*, *D. elegantissima*, *D. amabilis*, and *D. Baptisti*; Mr. Farrant being first for *Caladiums*, and Messrs. J. W. Pritchard & Sons, nurserymen, Dorrington, second. The prize for six *Coleuses* was well contested, and many of the plants were 7 and 8 feet in diameter. Messrs. Jones & Sons, Cotton Hill, were first; Mrs. Shaker (Mr. F. Morris) second; and G. D. Lees, Esq., Woodhill (Mr. J. C. Salter), third. *Fuchsias* were not well shown. Messrs. Pritchard & Sons, Lord Berwick (gardener, Mr. Pearson), H. Burd, Esq. (Mr. J. R. Jones), obtained the prizes in the order named. Mr. G. D. Lees obtained the only prize given for *Liliums*. In the class for six *Begonias* Rev. J. H. Charter, Severn Villa; Rev. J. D. Corbett (Mr. R. Milner), and Mr. E. Burd were the prizetakers with fairly bloomed specimens. In the class for six double *Pelargoniums* Messrs. Oldroyd & Co., Shrewsbury, were first with an even collection; Mr. Jones, Colom Buildings, second with good plants; and Messrs. Jones & Sons third with much smaller plants, but very neat. Six *Zonal Pelargoniums* Messrs. Oldroyd & Co. were again first; second Mr. J. R. Jones with good plants of Charles Smith, Lady Sheffield, J. Fellows; Messrs. Jones & Sons third, having good plants of Rev. F. Atkins, Master Christine, and Beauty of Wilts. In the corresponding class for three plants Messrs. J. B. Hudson, H. Owen, and H. H. Treasure were the prizetakers. The classes for *Achimenes*, *Gloxinias*,

and Balsams were poorly represented; Mr. R. W. Withers, Mr. B. Blyth, and Mrs. Shuker taking the principal prizes.

In the class for twelve table plants, pots not to exceed 6 inches, eight collections were staged, and the whole were good and much admired, Mr. Pratt gaining first honours with beautiful even plants about 8 to 10 inches high, some of the most noticeable being *Croton Prince of Wales*, *Aralia Veitchii gracillima*, *Dracæna Ernesti*, *Arceæ aurea*, *Dracæna Guilfoylei*, *Croton interruptus aureus* (a new light elegant form, recently sent out by Messrs. Ireland & Thomson, Edinburgh), *Geonoma gracilis*, and a well-coloured *Croton angustifolius*; Mr. Farrant gaining second prize with rather larger plants, the neatest being *Aralia Veitchii* and *Croton Wiesmani*. C. C. Coates, Esq. (Mr. Davies), was awarded the third prize. Messrs. F. & A. Dickson and Sons and Mr. Cypher were also exhibitors in this class.

For a collection of fifty miscellaneous plants in 5-inch pots, thirty in bloom. Six lots were staged in this class, and arranged upon staging 4 feet wide in the large plant tent. These collections were very effective, and excited much attention. Messrs. Pritchard & Sons were first with a choice assortment of Palms, Lilioms, Heaths, Coleuses, Ferns, Caladiums, Bouvardias, Fuchsias, Petunias, *Dracænas*, &c.; second Mr. H. H. Treasure (Mr. Cooper) with a similar assortment; Achimenes and Vallotas were most striking, Messrs. Pritchard & Sons secured the third prize.

Ferns.—These were not numerous, but really good specimens were exhibited. For nine exotic specimens Mr. J. Cypher was first with *Davallia Mooreana*, 8 feet through; *Alsophila elegantissima*, *Adiantum cardiochæna*, *Cibotium regale*, and *Gleichenia spelunceæ*. Second Mr. Williams, with fine plants of *Gleichenia rupestris*, *G. Mendelli*, *G. dichotoma*. Third Mr. Pratt, with good examples of *Adiantum amabilis* and *Nephrolepis davallioides*. For six exotic Ferns Mr. Warrender was first with plants about 5 feet in diameter of *Alsophila australis*, *Adiantum trapeziforme*, *A. formosum*, *Phlebodium aureum*, and *Microlepia hirta cristata*. Second Mr. Farrant, the most noteworthy being *Cyathea medullaris* and *Lomaria gibba*.

Miscellaneous exhibits were principally arranged in the large plant tent, and added materially to the general effect of the Show. Messrs. James Veitch & Sons, Chelsea, staged a most attractive group of plants, principally in small pots, including several Orchids in flower. *Rhododendrons*, such as *Princess Royal*; Coleuses were represented by G. Simpson, Mrs. Geo. Simpson, Dean Swift, and others. *Isolepis elegantissima* was also shown quite distinct, and an improvement upon the species. *Nepenthes*, *Crotons*, *Dracænas*, *Lilium auratum* dotted in the group, and many other valuable plants completed the collection. Messrs. James Dickson & Sons also staged an interesting collection of plants in 5 and 6-inch pots, including Palms, *Dracænas*, *Crotons*, and *Bertolonias* of the newest types. The same firm also showed a very fine box of Roses, not for competition, containing the finest blooms in the Show. Messrs. F. & A. Dickson and Sons, The Upton Nurseries, also staged effective collections of stove and greenhouse plants, and groups of choice shrubs in pots, with plants of *Lilium auratum*, and fine boxes of *Nertera depressa*, the plants crowded with their bright berries. Messrs. Pritchard & Sons also exhibited groups of plants, including Ferns, Achimenes, Caladiums, &c. Messrs. Oldroyd & Co. sent groups principally of Ferns, Palms, and small Zonal Pelargoniums in flower. Messrs. Jones and Sons, Cotton Hill, also staged similar groups.

CUT FLOWERS.—These were shown in quantity and in capital condition, especially the bouquets, Dahlias, Gladioli, and Phloxes. Roses were not very numerous, but in fair condition considering the lateness of the season. In the class for thirty-six, Mr. Griffiths, Hereford, showed good blooms of *Mdlle. Victor Verdier*, *Alfred Colomb*, *Niphetos*, *Belle Lyonnaise*, and *François Michelon*, and was awarded the first prize; the second going to Messrs. F. & A. Dickson and Sons, their best blooms being *Lord Macaulay*, *Marie Baumann*, *Mdlle. Marie Rady*, and *Charles Lefebvre*. For twenty-four blooms the successful exhibitors were Mr. G. H. Berrington, Ludlow, and Mr. W. Shaw, Blakebrook, the first-prize lot having good blooms of *Black Prince*, *Reynolds Hole*, *Niphetos*, and *Baronne de Rothschild*. For nine blooms Mr. Berrington was again first, Mr. C. Crump second, and Mr. G. Townsend third. For thirty-six Dahlias, distinct, Mr. Shaw gained the first prize with fine even blooms, those of John Bennett, Burgundy, Duke of Edinburgh, Flag of Truce, Victory, and Oracle being really beautiful. Mr. Griffiths of Hereford was second with blooms nearly equal to the first-prize stand, but smaller in size; his best examples were *Norfolk Hero*, *Donald Beaton*, *Vice-President*, *Lord Napier*, *Charles Wyatt*, *Monarch*, and *Rev. J. B. M. Camm*. For twenty-four Dahlia blooms, first, Mr. J. Sparke, Breadenheath; J. Bodenham, Esq. (gardener, Mr. Lawrence), second, with much the same varieties as those enumerated. Mr. Shaw and Messrs. Jones and Sons were the principal exhibitors of Gladioli, and staged some fine spikes. In the class for twelve trusses of stove and greenhouse flowers Mr. Pratt was first with fine fresh examples of red and white *Lapagerias*, *Stephanotis*, *Ixoras*, *Dipladenias*, *Ericas*, and others. Second, Messrs. Pritchard & Sons; equal second, Messrs. Jones and Sons; third, Sir C. Rouse, Broughton. Twelve bunches of hardy flowers, Messrs. R. W. Withers, Townsend, and Jones, were the prize-takers in the order named; the chief prizewinners in the classes for Phloxes being Messrs. Pritchard & Sons, Messrs. Oldroyd & Co., and Mr. R. Cooper. In the classes for Stocks, Carnations, Marigolds, and Pansies, Messrs. Shaw, Myers, Phillips, Cooper, Shuker, and Mrs. Hunter were the successful exhibitors. The bouquets were good and

numerous. For the bridal bouquet Messrs. Jones & Sons gained the first prize; Mr. H. Jones, Cotton Hill, second; and Mr. Cypher, third. For the ball bouquets the same exhibitors gained honours in the order stated.

FRUIT.—This was shown extensively and well, principally by local exhibitors. R. C. Naylor, Esq. (gardener, Mr. Hanagan), staged some excellent fruit in the collection of nine dishes, including good Muscat of Alexandria Grapes, Madresfield Court being well coloured and large in the berry; fine Grosse Mignonne Peaches, Pitmaston Orange Nectarines, Jargonelle Pears, White Heart Cherry, Brown Turkey Figs, Green Gage Plums, and Bloxholm Hall Melon. Mr. Pratt was second with a good collection, including fine Black Hamburgh and Foster's Seedling Grapes. Mr. Warrender was third. For the collection of Grapes an extra prize was given by Lord Hill. Mr. Pratt obtained the first prize with good well-finished bunches of Black Damascus, Black Hamburghs, and Madresfield Court; G. D. Lees, Esq., second with Black Hamburghs, Alicante, and Lady Downe's; Lord Forester, Willey Hall (Mr. Stevens), also staged good examples. Seven collections were staged in the class for white Grapes—first, Viscount Boyne (Mr. W. Boddy), with fine large bunches of Muscat of Alexandria; second, Sir C. Rouse, Broughton (Mr. Bean), with fine bunches of Buckland Sweetwater. Mr. Pratt was first with a Pine Apple with a large fruit of Charlotte Rothschild. Dish of Peaches, Sir F. Smythe, Bart. (Mr. J. Edwards), was first with large fruit of Albatross; Mr. Shaw second with fine coloured Grosse Mignonne; third, C. G. Wingfield, Esq. (Mr. J. Lambert). In the class for Nectarines Mr. Bean, Mr. Hanagan, and Mr. Warrender all showed Pitmaston Orange, the two first named staging very fine fruit. For a dish of green or yellow Plums, Mr. Hazledine, Lord Berwick, and J. Watson, Esq. (gardener, Mr. H. Purser), obtained the prizes. In the corresponding class for red or purple W. H. Harrison, Esq., and Mr. Williams, Ludlow, took the prizes. In the class for a green-fleshed Melon, first Lord Berwick, second Mr. Owen, third R. C. Naylor. For a scarlet-fleshed Melon, first, Mr. Owen, with Hero of Bath; second, R. W. O. Withers, Esq.; third, Miss Drownwood.

VEGETABLES.—These were shown in great quantities, and from what we have seen at various shows this undoubtedly proved the best display of the year. The vegetables occupied three parts of the side staging round a tent 250 feet long, the stage being about 3 feet 6 inches wide. In the class for a collection of vegetables, twelve varieties, there were fifteen entries. C. C. Coates, Esq., obtained the premier award, staging Snowball Turnip, Dell's Beet, Schoolmaster Potatoes, Fulmer's Forcing Bean, Telephone Peas, Clarke's Red Celery, Veitch's Autumn Giant Cauliflowers, Hathaway's Excelsior Tomatoes, Cucumbers, Vegetable Marrows, and Globe Artichokes. Second, R. C. Naylor, Esq., with the neatest and most suitable collection for table purposes in the Show; the best dishes being a fine brace of Telegraph Cucumbers, Marvel Peas, Early London Cauliflowers, Schoolmaster Potatoes, and good Intermediate Carrots. Third, Mr. Lambert. The Cucumbers and Celery were good in this collection. Good collections were also staged by Mr. Pratt, Lady L. H. Coates (J. McLean), and G. D. Lees, Esq. In the class for six dishes of Potatoes eighteen competitors appeared. Mr. Edwards gained the first prize with good examples of Beauty of Hebron, Porter's Excelsior, International, Grampion, and Woodstock Kidney. Second, Rev. R. D. Corbett with Webb's Surprise, Fox's Seedling, the other varieties the same as mentioned above. Third, Mr. Lambert with similar varieties. In the class for three dishes equally as many were staged; Mr. J. Williams, Rev. R. D. Corbett, and Mr. A. Myers taking the prizes. The prizes for Tomatoes were taken by Lord Berwick, Mr. Pratt, and Mr. J. Watson. The remaining vegetable prizes were well contested, and the principal prizetakers being the same as given in the other vegetable classes.

COTTAGERS' CLASSES.—This Society sets a good example to many others in providing in their schedule thirty-seven classes entirely devoted to cottagers, and a large tent 200 feet long was devoted to them. The plants exhibited only require a passing note, but the inducement of prizes encourages the masses to grow window plants, and this is worthy of acknowledgment. The hardy cut flowers were numerous and very satisfactory. Vegetables and small fruits occupied the greater portion of the tent, the former being most numerous, especially Potatoes, some thirty competitors staging single dishes. Carrots, Parsnips, and Onions were really good, and in many cases much superior to some shown in the open and amateurs' classes.

The Committee deserve the warmest congratulations for the manner in which the Show was conducted; and the improved system adopted over that of last year in placing the prize cards upon the exhibits. The success of the Society in a large measure is due to the indefatigable exertions of the two Honorary Secretaries, Messrs. Aclitt and Naunton.

EXHIBITING ORCHIDS.

I, FOR one, quite agree with your correspondent "N." (page 134), that the way Orchids are now exhibited requires serious consideration. If the system of bedding-out dwarf-growing Orchids at exhibitions is to be encouraged, by all means let there be a class or classes provided in the schedule for such; and if single specimens be encouraged let the judges be empowered to use all legitimate means to detect made-up specimens; and where an attempt at fraud is detected, let the exhibit be at once

disqualified. For a tray or pan containing from twelve to twenty distinct plants to be staged and judged as a single specimen against a *bonâ fide* specimen plant is manifestly unfair, no matter how creditable they may be as a whole or individually. The massing of dwarf-growing Orchids is undoubtedly a step in the right direction towards producing a glorious display of such plants, and is worth the attention of those whose business it is to draw up the schedule. It is said there is no Act of Parliament but a coach and four may be driven through it, and it appears to me that there are rules of horticultural exhibitions through which a costermonger's flower tray may be carried.—J. U. S.

SUNDERLAND FLOWER SHOW.

THE above Show was held on Wednesday, August 10th, in the Albert Hall, Toward Road, in close proximity to the principal park in Sunderland. As it was not possible to hold all the Exhibition in the Albert Hall, a capacious marquee was extemporised adjoining to the building, where most of the gardeners' and amateurs' produce were placed. The Committee were well organised, punctual to every minute detail, even to exactness; the Secretary's office being conspicuously situated in the hall, where access was easy. Another feature not unworthy of mentioning perhaps is that placards were freely posted over the Exhibition telling the names of the members of the Executive Committee, so that exhibitors knew whom to apply to at once. In the centre of the hall was placed a stage running lengthways, on which the principal plants were exhibited, the boards of which were mostly covered with machine-cut grass; this amongst the pots had a neat and pleasant appearance.

In the open class for six plants Mr. John Thompson, nurseryman, Newcastle, was deservedly first with very fresh plants of *Clerodendron Balfourianum*, a large *Rondeletia speciosa* major, *Erica Wilsoni* *superba*, and an average *Dipladenia amabilis*. R. Gaynor, Esq., The Cedars, Sunderland (Mr. Graham), was second with two good *Allamandas*, a good large *Stephanotis*, and a *Bougainvillea*. Mr. Gardner, Dunston, was third.

The Society offered £3 for six foliage plants. There were five competitors. Mr. Graham was deservedly first with, amongst others, a fine *Encephalartos villosus* and a handsome *Croton Andreanus* 7 feet high. Theo. Fry, Esq., Darlington (Mr. Noble), was second with a good *Cycas revoluta* and a *Croton Johannis* superbly coloured. H. Cravan, Esq., Sunderland (Mr. Appleby), was third. For six exotic Ferns Mr. Noble was first with very good specimens of *Davallia Mooreana*, *Gleichenias speluncae* and *rupestris*, and *Adiantums*. He was also first in the gentlemen's gardeners' class for six, and obtained premier honours with British Ferns. In the gentlemen's gardeners' class for six plants Mr. Henry Watson was first, Mr. Noble was second, both with good specimens. The foliage plants in this class were also good. Zonal *Pelargoniums* were in all classes excellent, very fresh, well flowered, and not too formally trained, the entries filling one side of the marquee. Mr. E. Laidlaw was first with a good collection.

Table plants, cut flowers, fruit, and epergnes were arranged round the hall on side stages. For twelve bunches of cut flowers Mrs. Pease (Mr. McIntyre), Woodside, Darlington, was first, a special prize of £2 10s. being offered. Bouquets and epergnes were exceptionally fine, Sunderland exhibitors having already gained a well-earned success. Mrs. Crament, Sunderland, was first for both bridal and hand bouquets; Mr. Watson, Laurence Street, Sunderland, being second. There were nine epergnes, all of which were above the average. John Henderson, Esq. (Mr. Thos. Rutherford), Leazes House, Durham, was first, the second and third being both creditable. In the open class the fruit was very inferior. The first prizes for black and white Grapes were gained by H. Stephenson, Esq., M.P., Westoe (Mr. Henry Smailes), the Grapes being well finished. Some average dishes of Peaches were exhibited, but all the fruit was shown unnamed. This great defect also occurred in many other classes, and the Committee would do well another year to strictly enjoin the naming of all the exhibits.

Florists' flowers were not numerous; Mr. Walker, Low Fell, and Mr. Harkness, Allendale, winning the principal prizes for Dahlias with flowers that were rather coarse, although of good size. Mr. Spoors of Swalwell had some fine *Gladioli*; and Mr. Battersby, Hogg Hill, staged some excellent *Phloxes*.

A great portion of the centre of this tent was devoted to Fuchsias, which were in fine condition. The vegetables were excellent. Mr. Lambert of Whickham exhibited two Cucumbers, not named, nearly 3 feet long. Messrs. Fell & Co., and Messrs. Joseph Robson & Son of Hexham, contributed excellent stands of *Coniferae*, alpine and bedding-out plants, which were much admired. We hope by another year, with the exertions of the Committee, and the business tact and courtesy of the Secretary and Treasurer, Messrs. John P. Chapman and J. Blacklock, that still better results will follow financially and horticulturally.—B. COWAN.

THE HOLLYHOCK DISEASE.—I send you a sequel to my note on Hollyhocks of several weeks back. The fungus proved too much for me, attacking not only the leaves but the stems. Then I cut every one of them an inch or two below the surface of

the soil, and made only the clean eyes and offsets into cuttings. In the frame the fungus was not long in appearing, and pinching off leaves and throwing away badly infected cuttings is again the order of the day. But worst and strangest of all, the growths sent up by the old plants are also more or less diseased, and where could it come from? They will be cut off again in a few days, and the clean growths propagated.—R. P. BROTHERSTON.

THE SHANKING OF GRAPES.

ANYTHING from Mr. Harrison Weir's pen or pencil is always interesting and generally reliable. There are doubtless thousands like myself who eagerly catch at anything from the friend we seem to meet and fraternise with every day of our lives. We know that what he undertakes to do he makes up his mind to do well, be it to sketch a bird's nest or grow a bunch of Grapes. There are certain cases, however, in which this very confidence is a source of danger, from the fact that many might be inclined to take without question any new plausible theory from such a source and throw to the winds that which is an indisputable practical fact. Probably less than twenty years ago shanking was by the majority of gardeners considered to be a disease, and as such there was scarcely any hope of entirely preventing it; but we have advanced since then, and can now produce shanking at will. Happily, also, we can to a considerable extent check it when it does unfortunately appear. Mr. Harrison Weir says "a Vine may be in first-rate condition, the roots, the wood, and foliage right, and yet the fruit will shank." This is quite true as far as appearances go, and the Vine may be even luxuriant; but we know that the best of us can be easily misled by appearances, especially in the case of Vines with which we are not personally acquainted. Some which look weak and puny will produce a marvellous crop of fruit year after year; others which are strong and luxuriant are liable to have some failing peculiar to them, the effects of which are difficult to hide even in the hands of the most experienced, while even the much-coveted moderate canes with ripe plump buds are not all we could wish. The explanation is, that though there may have been everything necessary to produce wood growth, there has been a deficiency of something essential to the perfect production of fruit. The deficiency may be in the soil, but it is not always there. Sometimes a grower who has been eminently successful in one place will move to another, and find great difficulty in satisfying himself with his productions.

The fact is gardeners know too little about the constituents of soils. Those of us who have a good knowledge of fruit culture succeed admirably so long as we have an unlimited supply of new loam and take ordinary precautions, even in districts where fruit does not succeed well naturally; but to cart a large quantity of the top spit of a pasture about every other year to add to a Vine border, as many of the foremost Grape-growers do, is very expensive, and in these hard times for landed proprietors, which show no signs of diminishing, cannot long be allowed; neither will any expenses be likely to be allowed in the long run which do not return an ample market value. I do not mean that the crop produced must necessarily be sent to market, but that it must be produced for the same amount it would fetch there; and that although it is very desirable to please the eye in prosperous times, it may become under altered circumstances more important to study the exchequer. I am afraid that many gentlemen look on their gardens as very expensive luxuries. That they are luxuries as far as the ornamental part is concerned there is no doubt, and employers are justified in curtailing expenses in that quarter if they are beyond their means; but the productive part of a well-managed garden, even in a bad season like the last, more than pays for its expenditure, and that employers would soon find out were they to buy all they require for a couple of years instead of growing it. Unfortunately, the ornamental and the useful are so mixed for the sake of economising space and labour that it is not possible to show the exact expenditure of either department.

There are many places where good culture alone with the natural soil would produce magnificent Grapes, and I believe there is no place in this country where an unlimited quantity of soil is added to good culture that good Grapes could not be produced after a few years. Now if we examine the conditions under which Vines flourish naturally, we find that it takes very little indeed in bulk to satisfy them; and does not this show, that although carting loam by hundreds of loads is very successful, it is nevertheless a cumbrous method, and that if we knew the particular ingredient or ingredients lacking in the soil already surrounding the roots, we could probably supply it in one load instead of in fifty? To illustrate what I mean, and show how easily one may be misled by the surroundings, I may mention a case of my own. I am situated almost between two hills of lime-

stone, one of which is only half a mile away and the other about three miles, both of which produce lime of good quality. If any one had told me that the soil here was likely to be deficient in lime I certainly should not have believed him, but nevertheless I have been here long enough to prove that it is exceedingly deficient in that essential, and am surprised at the results of applying lime to it. A similar thing may happen in other localities with respect to other ingredients, and as it was ten years before the thought dawned on me of what the deficiency was, it may be so in other cases unless chemistry is invited to our aid.

I am much obliged to Mr. Harrison Weir for giving me a peg to hang these rambling notes on, and will endeavour once more to attend to his subject. That writer says, "The best remedy for shanking in my opinion is sulphur on the pipes." If shanking were caused by fungus this would unquestionably be an effectual remedy; but unfortunately for the fungus theory, as well as the proposed remedy, there is the fact that till within the last few years almost every grower was in the habit of placing sulphur on the pipes for another purpose, and it did not prevent the shanking. Shanking is always caused by a vitiated or a deficient supply; it may be owing to the want of sufficient foliage or of healthy roots; it may be from the lack of some essential ingredient in the soil, or from insufficient water. Generally speaking, if the foliage is good, a little stimulant administered to the roots with warm water will temporarily check the evil. The writer says further on to the effect that the plan of cutting off the shanked part would be of no avail if the damage came from the root. I answer, Neither is it, except for appearance.—WM. TAYLOR.

THE shanking described by your esteemed correspondent, Mr. Harrison Weir, is not the shanking with which experienced Grape-growers are so familiar. Shanking is a disease incidental to the critical stoning period of Grapes, just as shrivelling and falling off is incidental to the stoning or seeding period of Peaches, Plums, Cherries, and Apples, &c. In the Vine shanking always happens about the period the seeds begin hardening. The berries, instead of changing to the sugary state, lose their freshness and become mere bags of water of a most disagreeably sour taste, and shrivel and drop in the end, and this happens generally before the footstalks perish. If a berry be pulled off and squeezed it will drop nothing but clear water, and leave a skin behind. What is the immediate cause of the disease is yet a mystery, but one thing is certain, and that is that excessive cropping will produce it. If the shanked berries are allowed to hang the footstalks will turn black and shrivel, but that has little to do with the disease.—J. S. W.

TAUNTON DEANE HORTICULTURAL SOCIETY.

I HAVE again had the pleasure of officiating at the Exhibition of this very flourishing Society (and where all the arrangements are so admirably carried out it is a pleasure), and again have been astonished at the zeal with which these west country shows are carried out and the interest taken by all parties in them. I cannot but contrast them with those of the south-eastern district. The value of the prizes, the amount of the exhibits, and the attendance of visitors are all in such striking contrast, that to compare them would be indeed Olympus to a molehill; and it must be recollected that it is not merely in the county town, but at Weston, Bridgewater, Sherborne, Barnstaple, and all towns of any size that these autumn shows take place. Railway stations and hoardings are covered with huge posters, in which the Societies seem to vie with one another as to which shall offer the best prizes and present the greatest attractions. Exhibitors leave, but others take their place; the cottagers exhibit better every year, and some of their exhibits show that taste is not confined to the middle and upper classes.

In noticing the stove and greenhouse plants, which are always so good here, some idea of their merits may be gained from the fact that Mr. Cypher of Cheltenham only came in second, the place of honour being allotted to Mr. Fawkes of Exeter, whose gardener Mr. Cole (one of the Manchester Coles) shows that wherever they migrate they carry with them their almost unrivalled skill as plantmen. It were useless to give the names of the plants exhibited. We all know at this season of the year what they must be; and when Mr. Cypher, Mr. Cole, and Mr. Tudgey were the exhibitors we may be quite sure that the very best were shown. There was a falling-off in the foliage plants and Ferns, but in the other departments there was a decided improvement. The cottagers' productions were grand, and they might very easily have competed with the gentlemen's gardeners. It was not simply that the vegetables and flowers were good, but the taste displayed in bouquets was very great amongst them; indeed I have rarely seen more taste than in the bouquets of wild flowers, which, moreover, were so numerous that the Judges felt compelled to award double the number of prizes offered in the schedule. In this tent, too, were exhibited the table decorations and bouquets. In both of these Miss Cypher again took first, although it is evident the lessons

that she has been teaching the Taunton folk have not been thrown away, for Miss Virgo had an arrangement very much in her style and very meritorious. It is not merely that Miss Cypher displays her excellent taste in the selection and arrangement of her flowers, but that all the appointments of the table were chaste and elegant; the centre one was too high for the present taste, where everything must be as low as possible. But by-and-by there will be a return to this style, which would never have gone out of fashion if it had not been for the monstrosities that some people erected, carrying the arrangement to its absurd extreme, and completely hiding those at one side of the table from those on the other. The latest absurdity I have seen of the present extreme was the scattering of Geranium petals on the cloth!

Nothing can possibly be more painstaking than the manner in which all the details of the Show are carried out under the direction of their able and indefatigable Secretary Mr. Clement Smith, and there are few places where a flower show can be more heartily enjoyed than in the pleasant county town of Somerset.—D., Deal.

EARLY ROMAN HYACINTHS.

THE bulbs for producing the earliest flowers at the end of October and beginning of November have been potted, and successional batches will require potting according to demands. The potting of the last batch should not be delayed too long. It is a frequent practice to defer potting in order to maintain a supply of these delicious white flowers over the longest possible period. This is a mistake. The bulbs should not be kept too long out of the soil; if kept until a glutinous substance oozes out of them they seldom do much good afterwards, and those are frequently blamed from whom the bulbs have been purchased. The early nature of the Roman Hyacinth has taught us that potting should be done in good time, and retarding done when the bulbs are removed from the ashes or the material used for covering them after potting. It is important to remove them from the covering before much growth is made, at least as soon as the bulbs are well rooted, gradually exposing them to the light. Those of the latest supply should occupy a northern position. After becoming thoroughly green abundance of air and water should be given them liberally.—W. B.

THORNTON HEATH HORTICULTURAL SOCIETY.

MUCH finer weather favoured the fourth annual Exhibition of this Society than that which rendered the Show last year comparatively unsatisfactory. The exhibits, too, were fairly numerous, one large marquee being filled with plants, cut flowers, fruit, and vegetables, which were generally marked by a freshness that is rarely exceeded at local shows. The schedule has undergone a careful and judicious revision, the money value of the prizes in many of the chief classes having been increased and other improvements effected that rendered it much better adapted to the requirements of the neighbourhood. Although the exhibitors came forward freely there was not any very close competition except perhaps in the classes for a group of plants and that for vegetables, in which the prizes were fairly contested. The vegetables were particularly well shown, not only by the amateurs and gardeners, but by the cottagers also. Cut flowers were bright and of good quality, plants numerous, but the fruit was poorly represented.

The principal class was that for a group of plants arranged for effect in the shape of a half circle, the space occupied not to exceed 10 feet by 7 feet, and in this there were seven competitors. These groups formed an important part of the display, for they occupied nearly the whole of the centre of the marquee, forming a line from end to end. The premier prize was gained by J. C. Lanyon, Esq., Birdhurst, Croydon (gardener, Mr. G. Fewell), who contributed a tasteful arrangement of Lilliums, Tuberos Begonias, Crotons, and Ferns. Mrs. Howes, Waldron, Croydon (Mr. A. C. Roffley), and D. Cornish, Esq., Dagnal House, Selhurst (Mr. Elsey), followed with pretty groups. Stove and greenhouse plants were not very extensively shown. In the class for six specimens in flower the chief collection came from Canon Bridges, Beddington (Mr. Penfold), who secured the first prize with neat specimens of Bougainvillea glabra, well flowered; Vinca alba, V. rosea, and Rondeletia speciosa major. The corresponding class for six plants remarkable for the beauty of their foliage brought three fine collections. Mr. Fewell took the first prize with handsome examples of Casuarina sumatrana, 5 to 6 feet high and in excellent health; Stevensonia grandifolia, very fine; Croton variegatus, good colour; Theophrasta imperialis, vigorous; and Latania borbonica. Mr. Penfold was awarded an equal first prize for a collection, including admirable specimens of Areca lutescens, Croton interruptus, and Davidsonia pruriens, the latter being in splendid condition. J. Donner, Esq., Wood Hall, South Dulwich (Mr. Bristow), secured the third prize with neat plants. Hardy Ferns were well shown by Messrs. Penfold, Fewell, and Roffley, who gained the prizes in that order. Exotic Ferns were also noteworthy, a Dicksonia antarctica and Adiantum cardiochlaena in Mr. Fewell's premier collection of six being equally fine. Mr. Penfold, who was second, staged a good specimen of Neottopteris australasica among other species, Mr. J. Bristow taking the third position. Fuchsias, Pelargo-

niums, Gloxinias, &c., were fairly represented, but do not require special enumeration. The most successful exhibitors in these classes were Mr. Elsey, Mr. Fewell, F. Wilkins, Esq. (Mr. Wood), and W. T. Stuart, Esq. (Mr. Rice).

Among the cut flowers Dahlias were the most numerous and the best in quality, but Roses and Asters were also shown in fair condition. For twelve Dahlia blooms of distinct varieties Mr. L. Hakeman, 9, Cleveland Villas, Bensham Manor Road, Thornton Heath, easily obtained the first prize with an excellent collection of symmetrical finely coloured and well selected blooms. The most notable varieties were Yellow Boy, very fine; Grand Sultan, John Lamont, and Oracle. The Rev. J. Watson, the Vicarage, Upper Norwood (Mr. G. K. Wright), was a good second, and W. H. Collins, Esq. (Mr. W. Crane), Cyprus Lodge, followed with small but neat blooms. There were five entries in this class. In another class for six Dahlias Mr. Hakeman was again an admirable first, his blooms being of high quality. Messrs. Wright and Elsey followed with bright specimens. In the amateurs' class for six Dahlias Edward Mawley, Esq., Lucknow House, Addiscombe, staged the best collection; the second prize going to Mr. W. Plowman, Beddington Lane, near Mitcham. Roses were not first-rate, the two principal collections being those from Mr. J. Leete, South Norwood, and Mr. Edward Mawley. Mr. Penfold exhibited a good collection of Asters. The special prize for table decorations was obtained by Messrs. Bishop, West Croydon, with a simple, neat, and yet admirably tasteful arrangement in which Rhodanthes predominated, most pleasingly intermingled with Grasses, Mignonette, Ferns, and small Campanulas. Although of a very unpretentious character, this stand would have graced an exhibition of much greater importance.

Fruit was not very plentiful nor of extraordinary quality, but clean fairly well-ripened samples were shown by Mr. T. Welstead, Croydon, who gained the chief prizes in all the classes. Vegetables were uncommonly abundant, and in fine condition generally. The most successful exhibitors were F. Minchiner, Esq., 3, Shirley Villas, South Norwood; S. Atterbury, Esq., Thornton Heath; and Messrs. Fisher, Crane, Fewell, and Elsey. Potatoes were grandly shown by W. Gooch, Esq., 6, Enmore Park Villas, South Norwood; Mr. G. Woodham, North Dulwich; and Mr. Rice. Numerous miscellaneous groups not for competition were sent by several nurserymen and others, the most noteworthy being the handsome collections from Mr. B. S. Williams, Upper Holloway, and Messrs. Laing & Co., Forest Hill. Special prizes were offered by Messrs. Wm. Paul and Sons, Waltham Cross, Herts; Messrs. John Laing & Co., Forest Hill; Messrs. Hooper & Co., Covent Garden, London; Messrs. James Carter and Co., High Holborn; Messrs. Daniels Brothers, Norwich; Mr. B. S. Williams, and Messrs. Sutton & Sons, the majority being contested by several exhibitors.

All the arrangements were very satisfactory, and were highly creditable to the energetic and enthusiastic Secretary, Mr. L. Hakeman, who has laboured hard during the past year to render the Exhibition a success and to improve the condition of the Society. The Show was held as in previous years by permission of K. T. Oelrichs, Esq., in the grounds attached to Elm House. During the afternoon the prizes were distributed by one of the Vice-Presidents—W. Grantham, Esq., Q.C., M.P.

HOW ARE YOU OFF FOR WASPS?

A WITTY friend of mine wrote to me this week, and asked, "How are you off for wasps?" I replied, "I shall be very happy to spare you a million if you wish." Strange to say that this year wasps are the gardener's especial trouble (he always has one on hand, poor man!) Sometimes grubs, other years slugs or green fly, or too little rain or too much. The gardener has always a difficulty to face; well for him if he has not two, as the man had who said his chimney always smoked and his wife always scolded. I pitied that man. Well, I have said that it is strange that this of all years wasps are so numerous, for last year there was none, or, to use better English, there were not any. It was also so very wet that I thought of nests there would not be any, and that wasps would be exterminated. But it is not so; every few yards in the hedgebanks is a wasps' nest. Each small garden has one to boast of, and larger have more. They are worse than birds however numerous, for net your Currants, Gooseberries, Raspberries, Strawberries, and Cherries, and Mr. Blackbird and Mrs. Thrush are done, and sit on an Apple bough evidently thinking—"This is too bad. Guns were bad enough, but then a body had a chance, and we have good eyes and good wings; but these nets are disgraceful; we can see the fruit and can't get at it. Too bad, too bad; the world grows worse and worse!" The wasps are everywhere, and no sooner does one kind of fruit ripen or partly ripen than they begin their attack. Cherries first, then Gooseberries, now Peaches, Plums, Pears, and even Apples.

I have taxed my ingenuity to destroy them. Wide-mouthed bottles with beer and treacle in them are good, but they fill so rapidly that soon the wasps fly out triumphantly, sipping the nectar in safety standing on the corpses of their brethren. I have a great number of these standing on the ground and hanging in

the trees, but still the wretches come in thicker swarms; each bottle may kill a corporal's guard, but what is that out of a whole army? Then as to the nests. In olden days we blew them up with gunpowder late at night, and there was high excitement among the boys in the village lane—they looking on. Then the pause before the explosion, then the wasps around their heads after, then the delightful feeling of experiencing or being on the verge of danger. We don't do this now; we pour gas tar into the holes, about a pint will do, and the wasps that are in can't get out, and those that are out can't get in! But at no time are all the owners of a nest at home. At night they sleep, if they sleep at all during the glorious carnival of the fruit season, in Apples and other fruits hollowed out by their industry. In spite of treacle traps and gas tar, which we have to give sometimes more than once, as the inside gentry make another hole and so, some of them at least make a way of escape.

But now for the best plan I know, which traps all those wasps that are flying about. Take two handlights; place one on the ground, but raised about an inch from the ground by a piece of

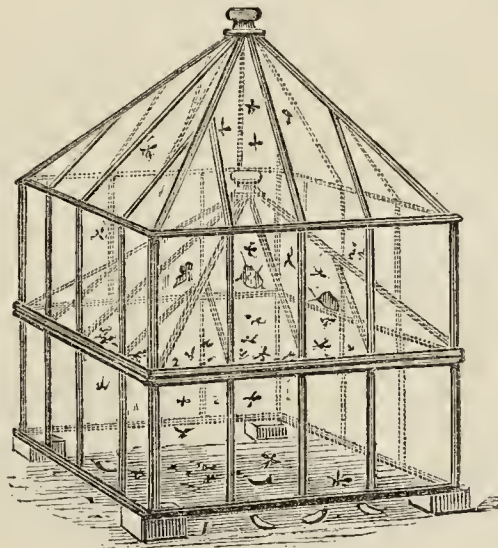


Fig. 42.—Wasp Trap.

wood at each of its four corners. Break two small holes in the top of this handlight, put a few pieces of Apple on the ground under, place another light of exactly the same size on the top of this, laying moss all round the edge where the two meet. The wasps, attracted by the Apples, enter. When they have eaten they naturally fly upwards, pass through the holes into the upper glass, where they in a short time die from starvation, falling among the moss. They never think of crawling down through the holes. Thus they are trapped. I have just seen as many wasps caught in this way as would come from two or three nests. The only thing to do when once the trap is made is to continue to put in fresh pieces of Apple or Pear or any other fruit. I enclose a rough sketch for the better understanding of this plan.—WILTSHIRE RECTOR.

[This is one of the oldest and one of the best modes of trapping wasps that we are acquainted with.—EDS.]

WINTER ONIONS AND SPRING LETTUCES.

ONIONS.

SEED of this useful esculent should be sown this month for a spring supply of bulbs, and some time between the 15th and 30th day of the month is a good time for sowing it. If sown before the former date there is a risk of the young plants running to seed, and if after the latter date the seed must be sown on well-prepared pulverised soil, and on land that is well drained. An open position is at all times necessary, away from the shade of trees. A good dressing of old manure should be dug into the ground a fortnight if possible before sowing, leaving the surface rough and open to the action of the air, then after a shower or sprinkling with water the clods will fall to pieces easily, and the ground be in good condition for receiving the seed, which should be sown in drills a foot apart, covered over and trodden firmly.

The White Lisbon variety I have found to be very hardy, having endured the last two winters well; it has also a very mild flavour. When the young plants can be seen in the rows a Dutch hoe should be run through them to destroy small weeds and promote healthy root-action. The rows should also be hand-weeded; and in October, especially if dry, the hoe should be run through again, twice if possible; they will then take care of themselves till the spring.

In March, when vacant ground is more plentiful than in August, another bed is prepared, using plenty of manure. Drills are made a foot apart, and enough young Onions drawn from the seed bed to plant 6 inches apart in the rows, not inserting them too deeply. These come in for kitchen use in early summer after the old stock of store Onions are over, and before the young Onions sown in March are ready. The young Onions in the seed bed from which these are drawn are used in a small state for saladings. The rows can be cleared as wanted, the ground hoed, and Brussels Sprouts or Cauliflower planted in it without being dug. If the ground is firm and solid so much the better, as, if too hard for making the holes with a wooden dibber, an iron crowbar can be used.

It is not a bad plan to sow half the Onion crop in August, and if large Onions for use in summer are in much request, the Tripoli kinds and Giant Rocca may be sown as well as the White Lisbon. The last-named is grown largely for bunching as young Onions in March, April, and May, to send to Covent Garden and other markets.

SPRING LETTUCE.

The old Bath or Brown Cos when well blanched in April and May is admitted by most gardeners to be one of the hardiest and best eating Lettuces grown, and such I have found it. As last winter was a pretty good test respecting their hardihood, two other varieties were sown at the same time (the 20th of August) with it—the Early Paris Market Cabbage Lettuce and Hick's Hardy White. These two proved to be equally as hardy, the Early Paris Market coming into use first, Hick's Hardy White second, and the Bath Cos next, keeping up a supply till the spring-sown Lettuce came in. The Paris Market hearts a little quicker than that useful variety All the Year Round; and as early Lettuces in spring are much sought after, these notes may not be out of place, as there is yet time to sow the seed on a warm border. The Paris Market, too, if sown in February at the foot of a wall, in a warm position, and thinned to 5 or 6 inches apart, is fit for use quicker than any variety I know of. At all times as opportunity occurs the hoe should be kept at work between them, not so much for the sake of destroying weeds as to promote free growth, thus causing the crops to come into use earlier than would be the case if the ground was not touched.—A. HARDING.

CUTTING VINES IN SUMMER.

OF all the plants in our gardens few or none will bear cutting or pinching while in a growing state better than the Grape Vine. If a leading rod or a side shoot is stopped or taken off at any part, the bud below this sends forth a fresh shoot in a remarkably short time, and it only takes a few weeks for this to attain the full dimensions of the original growth; and further, a green Vine stopped all over on one day soon becomes a flourishing mass of young shoots again without showing the slightest injury. Taking these facts into consideration, it is surprising that many should regard cutting the ripe wood of Vines as being so ruinous to the Vine's constitution. After the wood begins to turn brown it is very seldom touched with the knife, and at pruning time the utmost care is taken to prevent the smallest wound bleeding. Whether this may be necessary or not I will not argue at the present time, but I wish to state that, so long as the leaves are on the Vines, any part of the wood may be cut without any sap escaping or injury being done.

In these days of economy, and as many Vines are now grown, the summer growths are so interlaced, and the leaves so crowded over the shoots, that the wood has no fair chance of ripening until the best weather for accomplishing this is over, and all the fullest and best buds are formed at the extreme or wrong end of the shoot, as it is those buds nearest the main stem which produce the fruit the following year. To swell up and ripen these buds thoroughly may be regarded as one of the arts of Grape-growing, and to secure this very desirable end the present time should be taken advantage of to cut in all Vine shoots made this season. Shoots from which the fruit may have been cut may be shortened back to 8 or 10 inches from the main stem, and those bearing fruit to one eye beyond the bunch. All wood intended to ripen may be treated in this way without incurring any danger of starting a second growth, and the advantage of the operation will be distinctly visible next season by the free way in which the Vines start into growth, and the profusion of bunches as well as the general improvement of the Vines.—A KITCHEN GARDENER.

ROSE PROGRESS.—I was recently looking over a full catalogue of Roses of 1865-6, and think your readers may be interested to know that out of 270 H.P.'s quoted there only thirty-five are at

present in cultivation by the trade, and that out of this thirty-five only some twenty-five would rank as exhibition flowers. This shows 235 discarded in fourteen years—i.e., replaced by superior blooms. As really good, new, and distinct Roses are scarce this seems to point to a rapid progress, and the difficulty with growers now is to keep down the number of varieties, as old favourites are hard to discard.—GEORGE BUNYARD, *Maidstone*.

P.S.—The Teas of that day are still our best varieties.

DISA GRANDIFLORA.

It appears from the excellent notes (page 109) of my friend Mr. Tymons that this lovely Orchid is again coming to the front. I say again, for I can recollect when nearly twenty years ago there was a tremendous furore about it. At the grand opening day of the Royal Horticultural Society's Gardens Donald Beaton wrote thus, and whoever wrote such reports of flower shows as he did?—"At the extreme east stood two large pans of *Disa grandiflora*, from the top of Table Mountain behind Cape Town, from Mr. Leach, the greatest effort of prize gardening of all that was at this Show. No one in Britain has yet succeeded in growing this plant to perfection except Mr. Leach himself, and he says it is as easy as any other plant when the right treatment is given—say a mountain plant from a bog as hardy as any Cape Geranium. I have patronised this plant from the first to test the skill and patience of our craft, and now I am happy to be able to record that all the difficulties have been entirely got rid of." In a number of the Journal later on, in recording the first grand Rose show held at the Horticultural Gardens he said, "C. Leach, Esq., Heys Road, Clapham Park, sent three large pan-pots full of his glorious *Disa grandiflora*, the very finest terrestrial Orchid in the world, and there is none in the air to compare with it; moreover, it was in full perfection as it was never seen before in Europe."

It was a month or so after that—desirous of obtaining a drawing of it for the "Floral Magazine," which I then edited—that I paid a visit to Mr. Leach, and described in the Journal my impressions of it "at home," and these were my words. The "Cottage Gardeners' Dictionary" in describing it had said it has hitherto baffled the skill of British cultivators. I said this can be no longer said. "Mr. Leach had been in the habit of receiving it from the Cape, and believing, as all the world did, that it required its season of rest, he allowed it to dry off in the winter, and as a necessary result lost it; but one autumn, noticing that a plant still retained its verdure, he determined to see whether keeping in a growing state would suit it. This was the very point to hit, for when the shoots of the present year die down—yea, before they do so, the bud is springing up alongside of it that is to form the new plant." Mr. Leach made no secret of his culture. He told it to all who were interested. He gave one of his largest plants to the Royal Horticultural Society. He presented twenty plants to the Gardeners' Benevolent Society, which were sold by auction for its benefit, and he gave plants to friends; yet for one reason or another persons did not succeed with it. I have generally when visiting collections of Orchids asked to see it, but it has usually been in very poor condition. I have known large quantities of it to be imported by some of our largest growers, but they have failed. I saw it a few years ago at Glasnevin in fine condition. It was admirably grown by Mr. Salt; and I also saw it very well grown at Chatsworth. For some years I grew it well, Mr. Leach having kindly given me a plant; but when I came out here twelve years ago it dwindled away and I lost it altogether. As I in no way altered my treatment of it I could not account for this, but a friend to whom I was speaking about it suggested it was probably owing to the chalky nature of the water. Two years ago I purchased a clump of it from the Colchester Bulb Company, and was disappointed, knowing its history, to find that it was a dry lump. However, it started, grew well, and this year I have had the satisfaction of seeing it once again in flower, the plant having thrown up two flowering stems with a couple of flowers on each. I have as far as possible watered it with rain water, and the last two years have not often left us without a supply of that. But I am more inclined to think that the character of the peat has something to say to its success. Mine was procured from Mr. Epps, and in that it has thriven well. The present year's shoots are beginning to show symptoms of decay, but I see at their base strong sturdy shoots ready, I hope, for next year's work. I have nothing but a cool greenhouse from which frost is excluded; in this I keep it through the winter. When spring advances I bring it near the door, the position in which I saw it at Chatsworth. I have a syringe lying close by it, and I syringe the plant every time I go into the greenhouse. I should add that I prefer a pan to a deep pot for

growing it in, and that the drainage must be very good. But Mr. Tymons has so clearly shown the best way of cultivating it that I have no intention of adding to his paper, but simply to give a little of the past history of *Disa grandiflora*, which may have escaped the recollection of those who are now interested in the plant.—D., Deal.

[We shall next week publish notes on raising *Disa grandiflora* from seed, by Mr. Tymons.—EDS.]

HERTFORDSHIRE COUNTY FLOWER SHOW.

PROBABLY the first horticultural Exhibition ever held in the town of St. Albans took place on Friday and Saturday last in the grounds adjoining Gorhambury Lodge, that site having been kindly placed at the disposal of the Committee by the President, the Earl of Verulam. The Show was projected by the Herts Bee-keepers' Association, and by the aid of the energetic Honorary Secretary, the Rev. H. R. Peel, the preliminaries were successfully carried out, and the two exhibitions were held in conjunction. A report in another page indicates the success of the bee-keepers' portion, and if the horticultural display was not quite so extensive or so generally satisfactory as might have been expected, it was certainly no fault of the management. Of the eighty classes enumerated in the schedule all were confined to county growers, but many of these admirably endeavoured to sustain their credit, and to some extent succeeded in their efforts. The plants, fruit, and flowers occupied one large marquee, and a portion of another was devoted to vegetables and the cottagers' productions, the arrangements being satisfactory with the exception that too heavy a canvas was employed for the marquees, which was the more noticeable as the early part of the day was very dull. A large proportion of the plants exhibited consisted of collections from nurserymen not for competition, and brightened the Show considerably.

The principal class was that for a group of plants to occupy a space of 100 square feet, and in this there were only two exhibitors. Mr. Aylott, Oaklands, St. Albans, was first with an elegant arrangement of Ferns, Coleuses, Achimenes, and Pelargoniums, the chief feature of the group being the baskets of *Panicum variegatum* and *Tradescantia zebrina* suspended over it. Mr. D. Springings, The Nurseries, St. Albans, followed with Crotons, Liliiums, Ferns, &c.—healthy plants, but not disposed in a particularly artistic style. For nine stove and greenhouse plants, W. B. Greenfield, Esq., Beechwood Park (Mr. J. Freeman), gained the first prize with the only collection, which comprised a fair *Cordylina indivisa* and a healthy *Alocasia Jenningsii*. The best six stove and greenhouse plants was staged by E. R. Fenwick, Esq., High Firs, Harpenden (Mr. G. Underwood), and included *Acalypha marginata*, *Vinca alba*, and *Cassia corymbosa* in vigorous health, the last-named being well flowered and not so leggy as it is usually seen. Colonel Sim, Bushey (Mr. Willocks), was second with a fine example of *Dieffenbachia Bausei* and a potful of *Vallota purpurea*. In the class for twenty plants suitable for table decoration Mr. Willocks was placed first with neat specimens of Palms, Dracenas, Crotons, and Aralias. Mr. Sibley and Mr. G. Underwood followed with similarly neat plants. The only other exhibits of plants that require notice are the Ferns, of which two collections were staged, containing eight each. Mr. G. Underwood was first, specimens of *Adiantum formosum* and *A. concinnum* being notable for their freshness. Mr. Freeman was awarded an equal first prize.

Fruit was fairly well shown, a few of the collections containing really excellent samples. In the class for eight dishes Mr. G. Sage, The Gardens, Ashridge Park, Great Berkhamstead, was awarded the premier prize for well-coloured Black Hamburg Grapes, very fine Royal George Peaches, excellent Elruge Nectarines, handsome Morello Cherries, and an enormous Melon, The Squire. C. Butler, Esq., Hertford (Mr. G. Aslett), was second with a moderately fine collection, including good Morello Cherries and a fair Gilbert's green-flesh Melon. For six dishes of distinct fruits, H. J. Toulmer, Esq., Childwickbury, St. Albans (Mr. C. Pollard), obtained premier honours with ripe Pineapple Nectarines, Moorpark Apricots, and Black Hamburg Grapes. Sir Andrew Lusk, Colney Park (Mr. Sibley), followed with neat and fresh specimens; Mr. Wm. Gurning, Brockett Hall Gardens, Welwyn, taking the third position. Messrs. Sage and Aslett were successful exhibitors of Pine Apples, both fruits being of medium size but well ripened. Black Hamburg Grapes were shown by the Rev. H. R. Peel, Hemel Hempstead, and G. C. Lockhart, Esq., The Elms (Mr. F. Froud), in fair condition and secured the chief prizes. Mr. G. Norman, The Gardens, Hatfield House, Hatfield, was the only exhibitor in the class for any other black Grapes, and obtained the chief prize for Madresfield Court, well coloured and of good size both in bunch and berry. White Grapes were exhibited by Mr. G. Aslett in fair condition, and he obtained the first prize in that class. Melons, Figs, and Peaches were represented by moderately good fruits, the latter being the best in quality. Mr. Sage and Mr. Sibley were the principal prizetakers.

Vegetables were fresh and clean, Messrs. Aylott and Sibley taking the majority of the prizes. Cut flowers were few and do not require special comment. The cottagers' productions were numerous, the vegetables being particularly well grown. Several neat collections of wild flowers were also exhibited, the specimens being very accurately named.

The miscellaneous exhibits were very numerous, the most important

being from Messrs. Cutbush & Son, Highgate and Barnet; Messrs. W. Paul & Son, Waltham Cross; Mr. Francis of Hertford; Messrs. Paul and Son, Cheshunt; Mr. Watson; and Mr. Springings of St. Albans.

WENTWORTH CASTLE.

By the kindness of Thomas Wentworth, Esq., the members and friends of the Sheffield and Hallamshire Gardeners' Mutual Improvement Society were allowed to visit the gardens at Wentworth Castle on August 3rd. On arriving at Birdwell station we were conducted to the Birdwell Lodge gates, and there commenced a most pleasant and instructive walk. The drive is about three miles long from the lodge to the castle, and on entering the gates the visitor is at once struck with the magnificent specimens of Beech; at least for 700 or 800 yards there is a continuous avenue of Beech, many having stems from 4 to 5½ feet in diameter. Emerging from the avenue into an open space there was a fine lake to the right with an island of Rushes in the centre, and a little further to the left were two grand old Elms. After passing over a bridge with rustic fencing there was another lake with several islands. On passing through another gate we were in the woods again, with an avenue on each side consisting of old trees of Oak, Ash, &c.; to the right were good specimens of Larch, the trunks being over 3 feet in diameter, one clothed with Ivy was very beautiful. We next entered the open park, the drive being lined with trees, one side grand Elms, the other Oaks.

On arriving at the gardens we were met by Mr. James Batley, the gardener, who escorted us through the private grounds, kitchen garden, and houses, to the famous old castle, rebuilt in 1720, which is said to have been besieged by Oliver Cromwell. The walls round the old courtyard are being fast covered with Ivy, and the banks and a yard are laid down with grass, and in the centre is erected a statue of the third Earl of Strafford. From the top of the castle the visitors obtained a fine view of Penistone and the surrounding neighbourhood. Near the flower garden is a monument erected to the memory of the Right Hon. Lady Mary Wortley Montague. The conservatory was next visited. *Tacsonia Van Volxemi* was growing there luxuriantly, the roof being almost covered with it. Mr. Batley said that for the last five years the plant had rarely been out of flower. The remainder of the roof was covered with the graceful *Cobæa scandens*. There was a large walk down the centre and one on each side of the conservatory. In the centre bed was a grand specimen of the Norfolk Island Pine, the other beds being filled with good examples of Oranges, Palms, Tree Ferns, and similar plants.

In the kitchen garden were some bushes of Red Currants loaded with large fruit. Peas, Celery, Lettuce, and vegetables generally were doing remarkably well. The first house we came to there was a cool greenhouse filled with Pelargoniums, &c., then came the Pine stove. The Pines both for succession and fruiting were looking well. The side benches of this house were occupied with Ferns and Dracenas for table decoration. In the vinery late Grapes were very good both in bunch and berry. A sun-dial made in 1732 out of a Yew tree was greatly admired. In an Orange house a good specimen of *Tacsonia princeps* was in flower. In another vinery Muscat of Alexandria Grapes were fine, the bunches being large. The adjoining house contained Black Hamburgs and Gros Colman; the bunches and berries of the former were better than I have seen for several years. The next house was planted with young Vines growing very freely; a Vine in a pot was carrying two bunches of Hamburgs weighing over 5 lbs. each. On leaving this house and passing through the kitchen garden to the outer door our visit to the gardens terminated, everyone being quite satisfied with what they had seen. Permission having been granted for the visitors to see the picture galleries, many availed themselves of the opportunity. The party returned to Sheffield in the evening well satisfied with their pleasant excursion.—ROBERT HALL.

DEATH OF MR. ABRAHAM STANSFIELD.—Mr. Abraham Stansfield, of Vale Cottage, Todmorden, senior partner of the firm of A. Stansfield & Son, nurserymen of Vale Gardens, better known as Stansfield's Gardens, died rather suddenly on Sunday morning last, but for the last two or three years deceased had been in a very feeble condition. Mr. Stansfield had all his life been a most useful man to the town of Todmorden, having taken an active part in every matter which was for the good of his fellow men, and he had also won the respect and esteem of the inhabitants. He was a prominent friend to the Todmorden Scientific Association, and at the time of his death was President of the Todmorden Botanical Society, which post he had occupied for a great number of years. He had at various times of his life been fully engaged in public and private offices, and was very widely known and

respected. He was seventy-seven years of age at the time of his decease.

READING HORTICULTURAL SOCIETY. AUTUMN SHOW.

THE second Exhibition of the year was held on Thursday last in the Abbey Ruins, Forbury, and proved a great success in every respect, the exhibits being numerous, the weather exceptionally fine, and the attendance of visitors large. Plants were represented by many admirable collections containing bright healthy specimens. Cut flowers were very abundant, and added considerably to the pleasing effect of the Show; while fruit and vegetables were staged in first-rate condition, especially the former. The exhibits were very tastefully arranged, and a charming *coup d'œil* was presented to the visitor on entering the marquee at the higher end, the sloping and terraced sides being well suited for displaying plants to the best advantage. The management was generally satisfactory, but an unaccountable delay occurred in judging the plants.

STOVE AND GREENHOUSE PLANTS.—These were not represented by many collections, but the plants staged were mostly vigorous clean specimens. In the principal class for nine plants there were only two exhibitors, Mrs. Marsden, The Wilderness, Reading (Mr. Lees) gaining the chief prize with well-flowered *Eucharis amazonica*, a handsome *Allamanda Hendersoni*, and a neat *Rondeletia speciosa*. Mr. Mould, nurseryman, Pewsey, followed with smaller plants, among which were *Erica Austiniana* and a well-trained and healthy *Gloriosa superba*. In the corresponding amateurs' class for four specimens Major Storer, Purley (Mr. Mortimer), occupied the premier position, a specimen of *Bougainvillea glabra* being noticeable for the profusion of its flowers. E. Eyre, Esq., Welford Park (Mr. C. Ross), was placed second, his best plants being *Vinca alba* and *Justicia carnea*, the latter in much better condition than it is usually seen. Mr. Mould was first for a single specimen in flower with *Allamanda nobilis* in superb condition, the foliage and growth luxuriant and the flowers abundant. R. Floyd, Esq., Reading (Mr. Armstrong), followed with a well-grown *Eucharis amazonica*. For a single specimen new or rare plant Mr. Ross was first with *Maranta Van den Hecke*, a fine variety with dark green elliptical leaves and a white centre. H. J. Simonds, Esq., Caversham (Mr. Bezant), was second with *Dioscorea illustrata*, most luxuriant. J. T. Hall, Esq., Early Court (Mr. Bridge), sent the only collection of six *Liliums*, and was awarded the first prize for well-flowered examples of *Lilium lancifolium*, *speciosum*, *roseum* and *rubrum*, and *L. tigrinum* fl. pl. Mr. Mortimer had by far the best six Zonal Pelargoniums, his specimens being compact, healthy, well-flowered, the trusses of good size and the colours bright. Premier, Colonel Holden, and Mrs. William Paul were especially noteworthy. Cockscombs were shown in fine form by T. Somers Cocks, Esq. (Mr. Bridgeman) and Lord O. Fitzgerald (Mr. Lockie), who gained the prizes in that order with dwarf plants bearing enormous richly coloured heads. Messrs. Lees and Mortimer carried off the prizes for *Achimenes* with fairly good specimens. Colonel Clayton, Maidenhead (Mr. Burgess), had the six best *Coleuses*, neat pyramidal specimens and well coloured. W. Fanning, Esq. (Mr. Ashby), sent the finest collection of Tricolor Pelargoniums, plants of moderate size but very rich in colour.

FINE-FOLIAGE PLANTS.—In the class for nine specimens Mr. C. Ross obtained the coveted position with healthy examples of *Croton Johannis*, *C. Weismanni*, both well coloured; *Alocasia macrorrhiza* variegata, very luxuriant; *Bonaparteia gracilis*, and *Alocasia metallica*. Mr. Mortimer was second with a fine *Lantana borbonica*, and several *Alocasias* and *Crotons* in good condition. Mr. Lees was third, his best plant being *Alocasia metallica* with remarkably handsome foliage. In the corresponding amateurs' class for four specimens the Hon. R. Boyle, Purley (Mr. Hope), and Mr. Bezant carried off the prizes with similarly clean examples of *Crotons* and *Alocasias*. Ferns were represented by several handsome collections, the premier nine from Mr. Mortimer being remarkably luxuriant and healthy. They comprised *Adiantum concinnum latum*, very fine; *A. cardiochlaena*, also good; *Leucostegia immersa*, fresh; *Gymnogramma chrysophylla* and *Davallia Mooreana* of moderate size, but never exhibited in better condition, the plant being a mass of fine young vigorous bright green fronds about 2 feet long and broad. Mr. W. Lees was a good second with a neat *Adiantum farleyense* and *Asplenium bulbiferum*. Mr. Hope was first with four plants, *Adiantum formosum* and *Dicksonia antarctica* being notable in the collection. Mr. Bezant followed with smaller plants. *Selaginellas* were as usual well shown by Mr. Mortimer, who gained the chief award for neat conical specimens 2 to 3 feet high, *S. cæsia*, *S. Poulterii* and *S. apus* being the best; Mr. Hope was second also with neat examples.

GROUPS.—These were numerous, and contained plenty of colour judiciously softened by fine-foliage plants. Mr. Lees was the most successful exhibitor, his group principally consisting of *Liliums*, *Fuchsias*, and Ferns. Mr. Phippen, nurseryman, Reading, was placed second with an effective arrangement, and Mr. Burbridge third. An extra prize was awarded to F. J. Bland, Esq. (Mr. Powell.)

CUT FLOWERS.—Much of the brightness of the Exhibition was due to the collections of cut flowers, which were very numerous and good. Dahlias were especially fine. In the class for twenty-four blooms of dissimilar varieties Mr. Anstiss, Brill, was first with superb specimens

of excellent varieties; the blooms were of good size, admirable form, and clear rich colours. The most remarkable were Prince Bismarck, Annie Neville, Christopher Ridley, Monarch, and Michael Saunders. Mr. Tranter, Assenden, followed very closely with nearly equally fine blooms. Mr. Jackson, nurseryman, Kidderminster, obtained an extra prize for good samples. In the class for twelve fancy varieties Messrs. Anstiss and Tranter were the prizetakers in the same order with very fresh blooms. The best dozen French Asters were from F. Barry, Esq., Windsor (Mr. Brown), neat blooms; J. Hargreaves, Esq. (Mr. Turton), being second, and Mr. Phippen taking an extra prize. German Quilled and Cockade Asters were exhibited by Messrs. Brown, Benhill, and Phippen in fair condition. For twelve cut Roses J. T. Strange, Esq., Aldermaston Court, was first with neat blooms, and Mr. Tranter was a very close second. For six Roses Mr. Strange and Mr. Anstiss were the prizetakers. Miscellaneous cut flowers were well shown by Messrs. Phippen, Jackson, Burbridge, and Bezant. In the table decorations and bouquets Mr. Phippen and Miss H. S. Phippen were the most successful competitors, staging several tasteful arrangements.

FRUIT.—The entries in all the classes devoted to fruit were numerous, the quality satisfactory, and the competition in several cases was very keen. The principal class was that for a collection of eight distinct kinds, in which the first prize consisted of a silver cup value £5 5s., offered by Messrs. Sutton & Sons. This was awarded to Mr. Howe, gardener to Sir R. Sutton, Bart., Benham Park, who staged excellent examples of well-grown and matured fruit. They comprised Black Hamburgh and Muscat of Alexandria Grapes, the former even and well coloured, the latter of medium quality; Royal George Peaches, excellent both in size, colour, and ripeness; Morello Cherries of good size; Pitmaston Orange Nectarines, well ripened, handsome fruits; a fine Read's Scarlet-flesh Melon, a neat Queen Pine, and even well-ripened Brown Turkey Figs. Mr. Austin, gardener to Sir Greville Smyth, Bart., Ashton Court, followed with neat examples of Black Hamburgh and Bowood Muscat Grapes, fine Barrington Peaches, well-ripened Pine-Apple Nectarines, and good Bananas among others. Mr. Atkins, gardener to Colonel Loyd Lindsay, Lockinge Park, was third with Viard Apricots and a Lockinge Park Melon in satisfactory condition. For a collection of six kinds Mr. Mortimer, gained the premier award with fine Black Hamburgh Grapes, ripe Moorpark Apricots, and an excellent Cox's Golden Gem Melon. The second position was obtained by the Rev. H. Golding, Holme Park (Mr. Osborn); a dish of Morello Cherries being the most noticeable feature of his collection. Miss Paterson, Bracknell (Mr. J. Tomlin), was a close third. For a collection of four kinds "grown in the open air," R. Ravenhill, Esq., Fernhill, Windsor (Mr. Wells), was first with fine Morello Cherries and ripe Shipley Apricots. Mr. Bridgeman was second with good Moorpark Apricots; and Mr. Lockie third with Morello Cherries and Brown Turkey Figs in fair condition.

GRAPES.—Four classes were devoted to these, and some very fair examples were staged. In the class for three bunches of Black Hamburgh Mr. Ashby was awarded the chief prize for large handsome bunches, the berries being fine, even, and well coloured. Mr. Howe followed very closely, and Mr. Tomlin took the third prize with smaller but neat bunches. For a similar number of bunches of any other black variety there were six entries, the chief honours being secured by H. Harris, Esq., Micheldever (Mr. E. Crump), with grand bunches of Alicante, remarkably well coloured. Mr. Ashby was a good second with Madresfield Court in fine condition; Mr. Mortimer taking the third position with Alicante of fair size but only moderately well coloured. Mr. Mortimer, Mr. Ashby, and Mr. Ross were first, second, and third respectively with Muscat of Alexandria, all showing fair examples. For three bunches of any other white variety Mr. Wells was first with Buckland Sweetwater, well ripened; Mr. Atkins second with Foster's Seedling, fair; and J. Hargreaves, Esq. (Mr. Turton), third with the same variety.

Nectarines, Peaches, and Apricots were very abundant, about twenty-five dishes being staged in the three classes. The most successful exhibitors were Messrs. Osborn and Bridgeman. Messrs. Howe, Ross, and Atkins carried off the prizes for Figs in the order named, all with well-ripened fruit. Plums were shown by Mr. Bridgeman and Mr. Robinson, Cooper's Hill, in fine form; while among the nineteen Melons exhibited the best were from Mr. Atkins, The Gardens, Hampstead Park, and Mr. Lockie, who gained the first, second, and third prizes in that order with fine fruits. In the three classes for Apples about ninety dishes were staged, most of the culinary Apples being of fair quality. The chief prizetakers were Dr. Wells; J. O. Cooper, Esq., Calcot; and G. Palmer, Esq. Tomatoes were fine and abundant, the best being from Messrs. Ross, Jackson, and Atkins. A seedling Melon, raised and exhibited by Mr. Atkins, was awarded a first-class certificate. The exterior was of a rich golden colour thickly netted with white. The flesh was white and of fine flavour. We understand that Messrs. Sutton have purchased the entire stock of this Melon. Vegetables were well shown by several exhibitors, the chief prizes being taken by Messrs. Ashby, Howe, Miller, Locke, and Atkins. The first prize for kidney Potatoes was awarded to Suttons' Woodstock Kidney in a strong competition.

Among the miscellaneous exhibits were extensive collections of cut flowers from Mr. C. Turner, Slough, including superb Dahlias and Carnations, plants of *Bouvardia Hogarth* and *Vreelandii*, Roses, and Zonal Pelargoniums. Mr. H. Cannell, Swanley, Kent, sent stands

of Verbena and Zonal Pelargonium blooms in their customary bright condition.



At a general meeting of the ROYAL HORTICULTURAL SOCIETY, held on Tuesday last, Dr. Denny in the chair, the following gentlemen were elected Fellows of the Society:—Frank R. Cheshire, Lieut.-Col. W. H. Moffatt, Charles Oetzmann, and Mr. Herbert R. Peel (of Hemel Hempstead).

— THERE is now a handsome display of DAHLIAS in Mr. Charles Turner's nursery at Slough; Show, Fancy, and Pompon varieties being admirably represented. Of the two former the most noticeable are Mr. Spofforth, a grand, symmetrical, rich crimson bloom; Thomas Goodwin, deep maroon; Grand Sultan, rich crimson streaked with yellow; John Bennett, very distinct, with yellow florets tipped with glowing scarlet; Helen Macgregor, fine pale purple, tipped with a darker shade; and Lady Gladys Herbert, the florets tipped with warm crimson of a brighter shade within. Of the Pompon varieties the most distinct and attractive are the following:—North Light, fine bright scarlet; Lady Blanche, pure white; Julius Kohler, fine purple; Crimson Beauty, a deep crimson maroon; Toby, rich crimson; and Prince of Lilliputians, deep maroon. These and many more are now in fine condition, the richness of the colours and symmetry of the blooms being all that could be desired.

— THE value of BOUVARDIAS HOGARTH and VREELANDI is well shown in the above Nursery, where these two forms are extensively grown. The former as a red, and the latter as a white variety, can scarcely be excelled in floriferousness and general good constitution. Vreelandi is especially notable for the large clusters of long pure white flowers it bears, and in compactness of habit it can be favourably compared with the majority of varieties now grown.

— THE LIVERPOOL HORTICULTURAL ASSOCIATION have decided upon holding an Exhibition of fruit, plants, and Chrysanthemums in St. George's Hall. We hope under the management of this new Society, the Exhibition of Chrysanthemums once so familiar in Liverpool, will again be thoroughly established and will number as one of the principal autumn shows of Great Britain. Schedules are being prepared, and as soon as the date is fixed it will be announced in the advertising columns.

— A FINE old plant that is rarely seen at flower shows—namely, GLORIOSA SUPERBA, was staged by Mr. Mould of Pewsey at the Reading Exhibition on Thursday last. The specimen was trained in globular form, was in vigorous health, and bearing its peculiar but attractive flowers in profusion. It is not often that a formally-trained specimen looks so well as the one in question, but when climbing up the roof of a stove it is extremely ornamental, and is by no means so frequently seen in cultivation as might be expected and desired.

— AN experienced cultivator writing on the WEATHER & POTATOES states that he has no remedy for wet weather, which causes the disease; but what causes him surprise is the extraordinary manner in which people let fine weather pass away without taking advantage of it for securing the bulk of their crops. Like Mr. Luckhurst (see page 162) our correspondent has, by closely watching for the signs of the disease, and prompt action in lifting the crops, secured a fine yield of clean produce.

— A CORRESPONDENT states that "The VICTORIA REGIA IN

THE BOTANIC GARDENS, MANCHESTER, is now in extremely fine condition, the leaves being of great size and completely filling the tank; the flowers also are large and their fragrance most powerful. It has scarcely ever been in better condition, although the quadrangular tank is not well calculated to show it to the best advantage, as the leaves cannot spread equally from the centre. The health of this fine aquatic appears to be due to the fact that the house has a low roof, and the plant thus has the full benefit of all the light possible."

— A CORRESPONDENT writing to us under the heading of an EXTRAORDINARY ESPALIER PEAR, states that there is at the residence of Edward Mewen, Esq., Northiam, Sussex, a Jargonelle Pear tree of very large size. The wall is about 8½ feet high, and is well and regularly clothed with boughs apparently in good health for a distance of 30 yards. The main stem of the tree is rather flattish, and is fully 2 feet across. It bears sparsely, being exposed.

— IN one of the houses at Messrs. Sutton & Sons' Nursery, Reading, some hundreds of plants of a NEW TUBEROUS BEGONIA are now flowering. The variety is the result of a cross, and evidently partakes to some extent of the Pearcei type. The flowers are very large, in several instances more than 3 inches in diameter, of a fine pale primrose tint when first opening, ultimately fading to nearly white, and they are produced in astonishing profusion. The foliage varies in colour and markings; the leaves on some plants being very dark green and finely marbled white, on others they are of a uniform green tinge. It is a remarkable circumstance that five hundred plants raised from seed borne by one specimen should resemble each other so exactly in every respect except the colouring of the foliage. It is a useful attractive variety, one of its most valuable qualities being the freedom and continuance with which the flowers are produced. The delicate pale yellow hue of the flowers was shown up to the best advantage by a row of Vallotas placed along the back of the stage.

— AN attractive hardy plant and one of the best of the genus is MONARDA FISTULOSA PURPUREA, which, though not possessing the brilliant colour of M. didyma, is yet rendered very showy by the large terminal heads of bright purple flowers that are so freely produced. A good companion for the above variety is M. Russelliana, which has white flowers very faintly tinged with pink. There is also a white form of M. fistulosa.

— IN recognition of his valuable services as Manager and Secretary of AMIES' CHEMICAL MANURE COMPANY, Mr. G. Neilson Tucker has been elected Managing Director of that Company.

— A RECENT issue of the *Irish Farmers' Gazette* has the following concerning a MONSTER PEACH:—"A fruit of Lord Palmerston Peach, grown in Col. Jones' garden at Templeogue this season, was quite a wonder in its way. It weighed 17 ozs., and girthed somewhere about 11 inches. The tree, which is about four years planted, besides this mammoth fruit, bore a goodly crop of choice Peaches, each averaging from 10 to 11 ozs. Have any of our readers met with a Peach the weight of which was in excess of the above?"

— THOSE handsome herbaceous plants ANEMONE JAPONICA AND JAPONICA ALBA are now in splendid condition in many gardens, but we never saw them finer than they are in a garden west of London. Two long beds about a yard in width were entirely occupied with the rosy-flowered species and its white variety, and they could only be adequately described as a mass of flowers. The white form was especially fine, the blooms being uncommonly large, of great substance, and of the purest white, with the exception of a slight orange-coloured ring in the centre.

— WE learn that the ROYAL HORTICULTURAL SOCIETY OF IRELAND will hold its autumn Show on September the 2nd.

— IN the tank devoted to hardy aquatic plants at Kew that lovely little Pondweed, *APONOGETON SPATHACEUM* VAR. *JUNCCEUM*, is now flowering. It has small round rush-like leaves, 6 or 7 inches high, and produces a scape of about the same length, divided at the apex similarly to the well-known *Aponogeton distachyon*, but considerably smaller. The flowers and bracts are white with a purplish tinge. The plant succeeds well outside during the summer, but is safer in a frame or other cool place during winter.

— RELATIVE to the SCARCITY OF POTATOES in the spring, we learn that during the first six months of the year there was a deficiency in their carriage to London by the Great Northern Railway alone of 21,237 tons.

— A CORRESPONDENT states, "that in the WINTER GARDEN OF THE SUNDERLAND PARK, specimens of *Pandanus Veitchii* and *Dracæna congesta* are producing vigorous spikes of flowers. *Cobæa scandens* and *Tropæolum Lobbianum* cover the roof and produce a beautiful display of flowers."

— IT having been agreed that a testimonial of respect should be given to Mr. PETER GRIEVE, for thirty-one years head gardener to the Rev. E. R. Benyon, of Culford in the county of Suffolk, a Committee has been formed for carrying out the object, and the horticultural public is requested to join in honouring the "father of the tricolor Pelargonium." Donations can be forwarded to Mr. Joseph Harrison, Treasurer and Secretary, Bury St. Edmunds.

— "B." WRITING from Uxbridge says—"I find the Alpine Enchanter's Nightshade, *CIRCÆA ALPINA*, very ornamental among other herbaceous plants at this time of year. I have a fine tuft of it more than a yard in diameter, in a somewhat sheltered part of the border; and although the individual flowers are very diminutive, the short racemes on which they are borne are produced in such great numbers that the foliage can scarcely be seen. The white corollas, too, are relieved by the reddish calyxes and peduncles. A moderately sheltered position that is not too damp suits it admirably."

ROYAL HORTICULTURAL SOCIETY.

AUGUST 24TH.

THE chief features of this meeting were the Dahlias and Gladioluses, which alone constituted a brilliant display. Several other collections of plants were also exhibited, all more or less interesting, and the display was both bright and attractive.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Mr. W. Elphinston, gardener to E. M. Mundy, Esq., Shipley Hall, Derby, was awarded a cultural commendation for three bunches of Golden Queen Grape weighing 12 lbs., and fairly ripened. From the Society's Garden at Chiswick fruits of Bergamotte Auguste Jurie Pear were sent, for which a first-class certificate was awarded as an early variety. Mr. G. Williams, gardener to C. Liddell, Esq., Pensmarsh Place, Sussex, sent six plants of Black Hamburg Grapes in pots for table decoration. Each plant was bearing a bunch of well-coloured Grapes, one bunch being of great size. They were in 32-size pots. A cultural commendation was awarded. Mr. D. McLaurin, The Garden, Farnbro' Hill, sent samples of Hyde's Seedling Melon, which was characterised by the Committee as not so good as many in cultivation. Mr. W. Hinds, The Gardens, Canford Manor, Wimborne, sent a box of Improved Trophy Tomatoes, fine in form and colour. A Plum named John Powell from Mr. C. Turner of Slough was not considered superior to others in cultivation. Messrs. Thomas Rivers & Son, Sawbridgeworth, sent fruits of Dryden Nectarine, which were found rather tart in flavour. Mr. W. Iggulden, The Gardens, Orsett Hall, Romford, sent fruits of Tomato Trophy grown without fire heat. The fruits were of great size, excellently ripened, and well coloured. Herr Ernst Benary, Erfurt, sent a dish of white Tomatoes. Mr. J. Woodbridge, The Gardens, Sion House, sent Alnwick Seedling Grapes, for which a letter of thanks was accorded. Mr. Elphinstone, Shipley Hall Gardens, sent fruits of the Melon "Luscious and Melting."

A collection of fruits of the Egg-plant was sent from Chiswick comprising thirteen varieties, white, purple, yellow, and scarlet. A collection of about one hundred Capsicums was also sent from Chiswick. A first-class certificate was awarded for a variety named Yellow of Nocerd, a peculiar three-lobed fruit.

Special prizes were offered by Messrs. Freeman & Freeman of Norwich for their Melon "Luscious and Melting," and their "Champion" Cucumber. In the former class Mr. J. Coomber, gardener to J. A. Rolls, Esq., M.P., Hendre Park, Monmouth, was awarded the prize for a handsome well-ripened fruit. There were four entries in the class for Cucumbers, the successful exhibitor being Mr. C. Howe, Benham Park, Newbury, with two fruits, one 22 inches and the other 24 inches long, of admirable form and having fine bloom.

Messrs. Smith & Larke, florists, High Street, Kensington, sent a sample of Oats grown on a piece of very poor land to which a dressing of Clay's fertiliser had been applied at the rate of 3 cwt. per acre, no other manure having been put on the land for some years. The sample was of great weight, and a vote of thanks was accorded.

FLORAL COMMITTEE.—Dr. Denny in the chair. Messrs. Kelway and Sons' (of Langport) collection of Gladioluses formed the chief feature of the meeting. About eighty spikes were staged, comprising a very large number of excellent varieties. A great diversity of colours were shown from pure white to the richest scarlet. The flowers were of great size and closely placed in the spikes. Some of the best varieties were the following:—Anthony Watercr, crimson, white streak; Dr. Woodman, pale salmon, purple tinge in lower petal; Antisthenes, fine scarlet; Opiter, crimson streaked margin, light centre; Ball of Fire, glowing scarlet; Queen Mary, white, fine, purple streak in lower petal; Calliophon, fine rosy pink streaks; and Mr. Derry, pale purple. They also exhibited seedling Dahlias and Asters. The Asters were represented by a number of large blooms, white, crimson, and purple being especially fine. A gilt Flora medal was awarded for the Gladiolus.

Messrs. Veitch & Son, Chelsea, sent a collection of Orchids and rare plants. The most noticeable were *Aristolochia ringens*, a species with neat, small, reniform leaves, and medium-sized flowers thickly veined and marked with dark maroon. *Sigmatostalix radicans* was a pretty dwarf Orchid with narrow grass-like leaves, and racemes of small flowers with pale green sepals and petals and white labellum. *Oncidium ornithorhynchum album* had panicles of white flowers with comparatively large yellow crests on the labellum. *Dendrobium bigibbum superbum* had neat flowers, pale purple, purplish crimson labellum. *Zygopetalum Wendlandi*, a species from Costa Rica, had a single flower with pale green sepals and petals, and a purplish labellum. Messrs. Veitch also sent about thirty immense trusses of *Hydrangea paniculata grandiflora*, which were especially remarkable for the large number of medium-sized white flowers crowded in the panicles. Some of the latter were about 10 inches in height and the same in diameter. Mr. B. S. Williams, Upper Holloway, sent a collection of new plants. Among these were a specimen of *Mormodes pardina*, with yellow flowers, the incurved petals and sepals being spotted with claret. The flowers are borne in a short raceme, and possess a peculiar drug-like odour. *Lælia elegans prasiata* was noteworthy for the rich purplish crimson of the lip, and the dull purple sepals and petals. *Zygopetalum Gauteri* had pretty flowers somewhat resembling *Z. Mackayi*.

Messrs. James Carter & Co., High Holborn, sent specimens of the Empress Cockcomb, with extremely large heads of a deep rich crimson colour. A vote of thanks was accorded for these plants, which we learn were grown by Mr. Bridgeman, gardener to T. Somers Cocks, Esq., Great Marlow. Messrs. Rawlings Bros., Romford, sent several new Dahlias, Sir Stafford Northcote being noticeable for its fine form, great depth, and regularity, the colour being bright scarlet. C. Harris was of excellent form, deep crimson maroon; and Shirley Hibberd similar, but darker in colour and rather rough. C. Sh. field was a neat flower, purple and white. Messrs. Keynes & Co., Salisbury, exhibited some very handsome Dahlias, of which James Vick, deep purple; Walter William, bright scarlet; Lady Wimborne, bright pink; Mr. Compton, purplish maroon; and Mrs. Dodds, pale purple with lighter centre, were the best. Mr. Cullingford staged a collection of single Dahlias grown at Kensington, comprising many handsome scarlet, yellow, and maroon varieties. Mr. H. Cannell, Swanley, Kent, exhibited cut flowers of *Pyrethrums* from plants that had previously flowered early in the season; *Petunia*; *Zinnias*, *Tigridias*, and a single specimen of the fine Cactus Dahlia (*D. Juarezii*), all of which were in the fine condition that usually characterises the products from Swanley. Mr. A. Waterer, Knap Hill, Woking, sent flowers of *Lilium Parkmanni*, a handsome form with crimson spotted flowers. Mr. Goodacre, gardener to the Earl of Harrington, Elvaston Castle, Derby, sent a plant of *Stephanotis floribunda* of the Elvaston variety, which was very profusely flowered. The strain was commended.

Mr. Charles Turner, Slough, exhibited a number of handsome Dahlias, of which several were honoured with first-class certificates. Show, fancy, and Pompon varieties were well represented. A fine collection of Pompon Dahlias was sent from the Society's garden at Chiswick, a large number of handsome varieties being represented. A vote of thanks and a bronze Banksian medal were awarded to Mr. H. Boller, Kensal New Town, for a collection of *Mamillarias* and *Echinocactuses*, *Echinocactus scopa* being fine. Messrs. Sutton and Sons, Reading, sent a collection of their new Hybrid Tuberous *Begonias* referred to in another column. A vote of thanks was accorded, and the strain was commended.

First-class certificates were awarded for the following plants:—

Gladiolus Opiter (Keynes).—A very handsome variety. Large flowers, the tips and margins of the perianth division being streaked with crimson, the centre being lighter. *Aquinus*.—Rosy crimson,

with a few dark streaks and spots. Flowers large; spike massive. *Anthony Waterer*.—Bright scarlet, with streaks down centre of division. Flowers neat; spike large. *Pilumnus*.—Enormous flower, white, with a very slight tinge of purple and a few streaks; a most delicate tint. *Calliophon*.—Streaked with bright rose, lighter centre, and lower division stained with yellow. *Phormis*.—Flower very large, streaked with two shades of crimson.

Dahlia Revival (Turner).—A handsome show variety of great symmetry, moderate size, great depth, and very deep scarlet. *Queen of Spain*.—A fine flower of a peculiar yellowish tinge, with a few purplish streaks. Very good form. *Goldfinder*.—A grand yellow variety of excellent form. Colour very bright and clear. *Dr. Ranch*.—A Pompon variety, very neat; the flower 1 or 1½ inch across, of a

reddish tinge. *Professor Klug*.—Also a Pompon; pale pink. Very pretty. All the above, except the Pompon varieties, were raised by Mr. Fellowes.

Dahlia Lady Wimborne (Keynes).—A rich deep pale rose-coloured show variety; very clear and symmetrical. *James Vick*.—An admirable variety, deep purple, and very symmetrical. *Mr. Compton*.—An exceptionally handsome show variety, of excellent form, and deep purplish maroon in colour.

Lilium Parkmanni (Waterer).—A beautiful form with large flowers; the centre of the division very rich crimson, spotted with a darker shade, the margin being white.

Bolbophyllum Beccari.—A botanical commendation was awarded to Messrs. E. G. Henderson & Son, Maida Vale, for a specimen of this



Fig. 43.—EUCRYPHIA PINNATIFOLIA.

peculiar Orchid. It had enormous leaves, nearly a yard in length and over 2 feet in breadth, and was bearing a spike of small dull-coloured flowers, that possess a most offensive odour.

During the afternoon F. Cheshire, Esq., continued his lecture on bees, the subject then discussed being "The Modern Inventions which have for their Object the Assistance of Bees in Storing Honey in Purity for the Benefit of Man." The lecturer most entertainingly explained the construction of comb and the advantages of employing artificial foundations. The modern mode of extracting honey was also fully treated on, the superiority of the present system as compared with that formerly practised being illustrated at length. A vote of thanks was unanimously accorded to Mr. Cheshire at the conclusion of the highly interesting and instructive lecture.

EUCRYPHIA PINNATIFOLIA.

ONE of the most beautiful shrubs of recent introduction is that represented in the annexed engraving, which fairly indicates the

general character of the foliage and flowers. The species has been in this country for the past three or four years, but was first exhibited by the introducers, Messrs. Veitch & Sons, at the meeting of the Royal Horticultural Society on August 10th, when a first-class certificate was awarded for it. The sprays submitted to the Floral Committee and that represented in our engraving were gathered from specimens of the shrub growing in Messrs. Veitch's nursery at Coombe Wood, where it proves quite hardy and flowers most profusely. It is unquestionably a grand addition to our list of really ornamental shrubs; and being hardy, at least in the south of England, is also a great point in its favour, and further north, where possibly it may not endure the winters unprotected, it could be successfully grown in a conservatory or winter garden.

Eucryphia pinnatifolia is one of a small number of species constituting a genus that is represented in both Chili and Australia; but the one now described is a native of the former country, where it has been found in various rocky districts, but is rather scarce.

The flowers are large, pure white, and usually borne in pairs near the upper portion of the branches, affording an agreeable contrast to the dark green pinnate leaves. The stamens are thickly clustered in the centre of the flowers, and that character combined with the form of the flowers is somewhat suggestive of the Mock Orange. These blooms also possess a powerful and pleasant fragrance. This shrub is likely to obtain a permanent place in the gardens of this country when its merits become more generally known.

THE SCOTCH CHAMPION POTATO.

MR. LUCKHURST is a bold man to tell the world that he will discard the Potato which attained such celebrity last year, that, in popular parlance, everybody was "running after" seed of it early this season. Two things occurred to me in reading the observations on page 162. First, has your correspondent the true variety? secondly, if he has, has he not been rather premature in denouncing it? I have grown and eaten two forms of the Champion. There is not much difference in their appearance when growing, but when the tubers are cut one is "decidedly yellow," the other only suspiciously so, and when cooked the tubers of one are yellow and sad, those of the other being white and floury. The cooking of both was done in the spring, which is the season for the Champion; and it is about as hasty to denounce it now as it would be unreasonable to complain of the quality of the Old Ashleaf in March. If the Scotch Champion is "decidedly inferior," how comes it that it was awarded a first-class certificate by the Royal Horticultural Society for excellence of quality, after it had been submitted in a cooked state? This is essentially a late Potato, its period of use being March to June, and August is not the proper month for estimating its culinary merits.

Those are fortunate who can insure good and sound crops of York Regents and Victorias for late use; but thousands were unable to do so last year, and, in some parts of Ireland at any rate, they will be in much the same position this season. It is not with such cultivators a question of Champions *v.* Regents, but rather of Champions and Magnum Bonums or no Potatoes. These varieties have proved of great value in low-lying and wet districts; but it is a question if they would be half so profitable in dry localities during a hot summer, therefore I should never grow them exclusively.

"A LINCOLNSHIRE GROWER" on page 158 appears to have found out, I was going to say a weak, but I suppose it is a strong point, of the two celebrities. He says they are "terrible soil-exhausters." Their luxuriant growth and couch-like roots take out, perhaps, twice the manurial elements from the soil that some other varieties do. I have just been examining a piece of Wheat that followed Potatoes, one half of the ground last year being Regents, the other half Champions. There will be a great difference in the yield of Wheat from the two halves of this plot, the growth on the Champion half being altogether lighter and the heads smaller than on the other. In stating the "Champion" half as the lightest, I perceive I have committed a "bull." It is, however, I presume, quite appropriate, for I am—AN IRISHMAN.

LEE HALL,

THE residence of J. H. Wilson, Esq., is situated at Gateacre, six and a half miles from Liverpool. It is easy of access, the main drive being in close proximity to Gateacre station. The gardens are reached by traversing the drive through the park, which is rather extensive, and contains some good forest trees, such as Limes, Horse Chestnuts, and Elms. The trees stand separately, and have developed into symmetrical specimens. The glass is the principal object, and includes a range of vineries divided into three compartments. In front of these vineries is a low house, which entirely covers the border in which the Vines are growing. Tomatoes were growing on the back portion of this house, while on the front stage we noticed good specimens of that beautiful and popular Carnation Souvenir de la Malmaison. Amaryllises were growing in quantity, all seedlings of continental origin. The best have been selected when in flower and hybridised, and many seedlings have been raised by Mr. Glover, the gardener. The stove is a good-sized house and contained a miscellaneous assortment of plants, including a fine *Goniophlebium appendiculatum*, *Cycas revoluta* in good condition, and a handsome *Sobralia macrantha*. Stanhopeas and other suitable plants in baskets were suspended from the roof. The house devoted to Azaleas is 66 feet long and 18 wide. The centre bed was filled with large specimen and half-specimen plants. The back stage was filled with small plants of Azaleas, principally semi-doubles. The front was filled with Heaths, Epacris, and other New Holland plants. Camellias occupied three houses. A few years ago the plants were tall and

leggy; they are now fine, healthy, symmetrical bushes in pots. The majority of them have been cut close back and allowed to break again. The result in this case was good, and no better system can be adopted when Camellias become straggling. After being cut down the plants were allowed to develop into bushes—much better than twisting and pulling them into some formal shape. The Camellias have heat only to keep out frost, and Mr. Glover contends that when plants are healthy and vigorous heat is not necessary to secure a good set of bloom unless early flowers are required. Shading is employed during the hottest part of the day, and the plants bloom well. On the back stage of the Camellia house some Chrysanthemums in 3-inch pots were in bloom the last week in May, and the last of a supply from November. The cuttings were struck late in the autumn from plants growing in the shrubbery borders. It is evident that the flowering season of this most beautiful of winter plants could be extended over a much longer space of time during winter and spring if cuttings were struck late as in this case. I noticed in a lean-to house with a northern aspect some large Sikkim Rhododendrons and many plants of Cacti coming into flower. The conservatory is 50 feet by 28, and was gay at the time of my visit with Azaleas, Mignonette, Erica Cavendishiana two very good plants, Roses, Intermediate Stocks in pots, and the usual assortment of flowering plants. There is no stage in the centre, and the plants employed for the centre group can be conveniently arranged to produce the greatest and most pleasing effect. Fuchsias are trained under the roof, single rods, which run to the top of the house, and are at pruning time spurred-in like Vines. They are in tubs, which they have occupied for about fourteen years, although rich surface dressings have been applied annually.

The great feature of Lee Hall gardens is the grand collection of Orchids, so well known round Liverpool. It is by far the most extensive and complete collection in the neighbourhood. I may say nearly all have been small imported pieces to start with and are now grand plants, and some of them have proved to be varieties of superior merit. The first house is 30 feet long and 13 wide, span-roofed, with walk up the centre. This house is kept cool, and the Cattleyas are placed in it while in bloom. Nine good plants of *C. Mossiae* and its varieties were in bloom, also a fine dark variety of *C. Mendellii*, *C. Forbesii*, and *C. amethystoglossa*. A good plant of the pretty *Colax jugosus* was flowering freely. Several good specimens of *C. barbatum* were well bloomed. *Maxillaria grandiflora* had forty-five spikes of bloom. Many plants of *D. nobile*, *D. pulchellum*, *D. Devonianum*, *D. chrysanthum*, and *D. crystallinum* were in flower. The Anguloas were much stronger than any I have had the pleasure of seeing for some time past. Oncidiums were well represented, and amongst the best in bloom were *O. sarcodes* with a fine branching spike of yellow and crimson flowers; *O. stelligerum*, *O. cucullatum majus*, *O. macranthum*, a grand Orchid producing a branching inflorescence several feet in length; and *O. ampliatus majus*, a very fine variety. The adjoining house was devoted to *Odontoglossums*, *Masdevallias*, &c., and was very bright with many varieties in flower. Most conspicuous were the large-flowered *O. vexillarium*, *O. cirrhosum*, *O. Pescatorei*, *O. Alexandrae*, *O. gloriosum*, *O. nebulosum*, *O. sceptrum*, *O. Hallii*, *O. triumphans*, *O. luteo-purpureum*, *O. maculatum*, *O. Dawsonii*, and the rare and beautiful *O. cordatum* were in grand health and blooming freely. A hybrid *Odontoglossum* was also in flower, and appeared to be a cross between *O. luteo-purpureum* and *O. Lindleyanum*, possessing the lip of the former. *Masdevallias* were very robust and well bloomed, and added greatly to the effectiveness of the house. *M. Veitchiana* was very fine; *M. amabilis*, *M. ignea*, and *M. ignea splendens* were in good form; *M. ignea violacea*, *M. Lindeni*, *M. Harryana* and its variety *splendens*, and *M. sanguinea superba* were also in bloom. *Epidendrum vitellinum majus*, *Mesospinidium sanguineum* were bright in baskets, and *Odontoglossum Cervantesii* and *Leptotes bicolor* were suspended in numbers from the roof and flowering abundantly. The secret of Mr. Glover's success with species requiring cool treatment is in maintaining a very cool airy temperature and supplying abundance of water. During winter the frost on many occasions was only just excluded from the house, and the plants did not suffer in the least. Their appearance at the present time sufficiently indicates that the plants thrive with the treatment they receive from Mr. Glover.

The Cattleya house is 66 feet long and 18 feet wide, and the centre stage is entirely filled with good plants of *C. Dowiana*, *C. gigas*, *C. crispa*, *C. labiata*, *C. Mendellii*, *C. Skinneri*, *C. Warneri*, and other leading and popular varieties. This house was rendered bright with quantities of *Anthurium Schertzerianum* in bloom arranged amongst the Cattleyas. In fact all through the Orchid houses quantities were in bloom, and nearly all seedlings that Mr. Glover has raised. Those in the intermediate houses were stronger

and finer than those grown in the hottest houses. The next and last is the East Indian house, and is only separated from the above house by a glass partition. The first plant that attracted attention was *Hoya imperialis* in flower, a plant seldom seen in private places. The house contained some good Vandas; a piece of *V. tricolor* was in flower, also *Saccolabium ampullaceum*. *Aërides* was represented by good plants, and *Cypripediums niveum* and *Hookeræ* were in bloom. *Sonerilas* and other dwarf-growing plants of a similar nature were growing amongst the moss with the Vandas, *Aërides*, &c., which looked neat and effective.

The grounds were in good order, and the flower garden and shrubbery borders gay with spring-flowering plants. Mr. Wilson is a great Orchid enthusiast and lover of horticulture. Mr. Glover, like his employer is equally so, and a most successful cultivator.—WM. BARDNEY.

FLORAL DEFENCES.

(Concluded from page 161.)

Path-pointers.—Sometimes Nature fulfils the old adage of killing two birds with one stone, and uses her floral palisades as path-pointers to direct the welcome visitor to the nectar. One of the most exquisite examples of a structure serving such a double purpose may be found in the Grass of Parnassus. Five of the ten stamens are transformed in such a way that their broad bases bear rows of finger-like organs, each with a little yellow knob at the tip. The knobs are not glandular, at all events they do not form a sticky secretion. The nectar is found at the base of the stamens on the inside next the pistil.

Botanists have been very much puzzled what to make of these gold-tipped claws. They have been called staminodes, imperfect stamens, scales, nectaries.

In the charming blossom known as Passion-flowers protection is afforded in quite a different manner. A floral appendage, answering to the yellow centre in the Polyanthus Narcissus and called the corona, is divided into a double or a triple fringe, forming a diadem around the anthers and the curiously shaped pistil. No creeping thing can pass through such a zone, the loveliness of which seems as if designed to attract a humming-bird or a butterfly.

It is sad that a friendly insect should ever have recourse to partaking surreptitiously of hospitality which would willingly be accorded if sought in a friendly way. But truth requires the admission that certain bees, otherwise accustomed to conduct themselves with propriety, are in the habit of setting all order and etiquette at defiance by biting through the tubes of flowers just above the nectary, thus plundering the blossom of its sweets without coming into contact with the stamens or the style.

Against such a burglarious entrance certain flowers are defended by a calyx resembling an inflated bladder, in the centre of which rises the tube of the flower. The bee may bite through the calyx but cannot reach the nectar, and it is probable that flowers thus defended are very rarely attacked. The distended calyx also serves for the distribution of the seeds by the wind.

There are many flowers unprovided with any of the foregoing appliances or means of defence which we have been considering. We speak of animal sagacity, and there is something which may be called floral sagacity in the way by which one unprotected flower is secured from

molestation. It is one of the Touch-me-nots, common in the forests of Germany. The flowers are full of nectar and are attractive to bees, which are welcome visitors; but the mode in which ants and other creeping things are kept away is singular. In the place of stipules at the bases of the leafstalks on the stem, the plant develops small saucer-like receptacles which are kept full of honey. Dr. Kerner writes—"Any insects that creep along the stem must, if they would get at the flower, of necessity pass over this deposit of honey; thus what they would have sought, and moreover would have found in the flower, is already offered them below in rich abundance. The creeping insects are not fastidious. Nectar in one place is the same to them as nectar in another. They are content with that which is first offered, and so do not trouble themselves to climb further up to the flowers." Dr. Kerner has seen three ants feeding together at the honey on the stem, but though he has examined hundreds of plants, he has never seen a single ant reach the blossom.

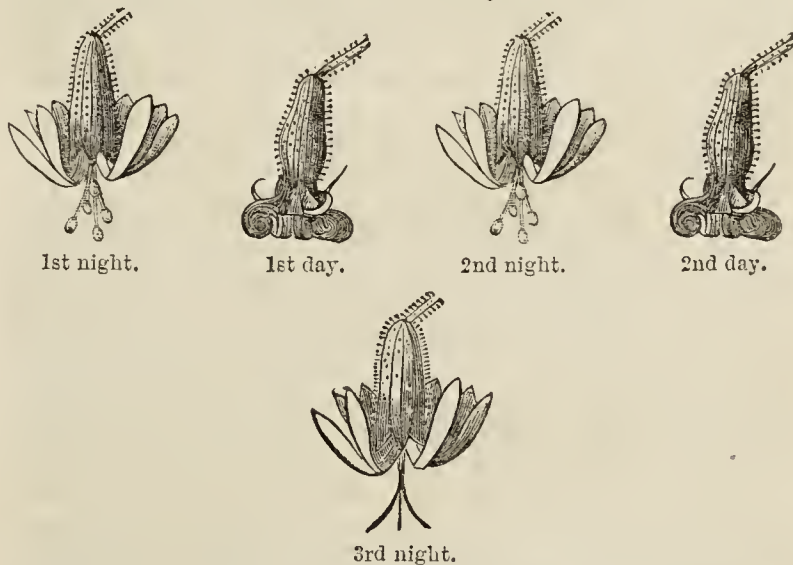
In a short notice of Flowers and their Unbidden Guests, which I wrote for one of the Liverpool papers, and which it is possible that some of you may have seen, I mentioned that towards the close of Dr. Kerner's volume

occurred two charming plant stories like drops of honey at the bottom of a flower. The substance of one of them will serve for our last illustration. It may be called the life-history not of a plant but of a single blossom, a blossom of the Nodding Catchfly, which,

however, does not seem to be the *Silene nutans* of the English Flora.

Night-flowering plants, such as the Evening Primrose, last but a short time in flower, usually one night only. A single blossom of the Nodding Catchfly, however, remains three nights and two days in perfection, and observes, in the opening and closing of the different parts of the flower, an order more like the result of intelligence than of mere vegetable growth. On the first evening the flower expands about eight o'clock, and remains open far on into the night. Of its ten stamens five push themselves boldly in advance of the petals, which fall back upon the calyx, displaying the pure white of their upper surfaces. At the same time the anthers open and are richly covered with fresh pollen. The plant now sheds a strong perfume attractive to night-flying insects, which, for some unknown reason, alone are acceptable to the Nodding Catchfly. The following morning the five anthers droop, wither, and finally fall off. The petals roll themselves up so as to exhibit only their dull green undersurfaces, and all emission of perfume ceases. There is now nothing to attract day-flying insects, and the flower is well protected from the visits of ants and other creeping things by viscid hairs on its stem as represented below.

From its old and wrinkled appearance one might think that the flower had withered and shrivelled up. Not so: at the approach of night the wrinkles disappear; the petals show their brilliant white surfaces; again the sweet perfume is spread on the night breeze, and the remaining five anthers come forth fully opened out and laden with fresh pollen. On the second day a similar withering and shrinking of the flower occurs, the anthers of the past night fall away, and no perfume attracts a butterfly or a bee. The floral dis-



CHANGES OBSERVED IN A SINGLE BLOSSOM OF THE NODDING CATCHFLY.
Fig. 45.

guise, for such it really is, continues till the third night, when again the petals expand as fresh as ever, and the perfume flows out freely, this time in favour of the silky pistils, the styles and stigmata of which stand out, as the anthers did before, and are now ready to be fertilised by pollen from flowers in their first or second night's condition.

Marvellous! Why should such an inconspicuous flower have so singular a history? Why should it prefer night-flying insects, and be so excessively coy by day? Why should it put forth five anthers only on the first night, and the rest on the second night? Such questions might be multiplied, and to all of them there can be but one ultimate answer: but in subordination to that answer, and for instruction as to the means whereby so wondrous a life history has been brought to pass, they all point to a theory of development which has been charged with robbing our love for flowers of all its poetry and of half its capacity for affording delight. Surely it has opened for us new resources within the reach of every willing observer.

The life history of our most common British plants has hitherto been very insufficiently traced, and may yet yield rewards far higher than the discovery of new species. One word of caution is needed: we must not suppose that now we have found a way to the bottom of Nature's secrets. A distended calyx may not always be meant for a defence against biting bees. Many flowers seem not disposed for cross-fertilisation, but the contrary, and then, of course, they require no defences; nevertheless they seem to have them: so there is something more to be found out.

I cannot claim much originality in what I have stated. I have mostly described what others have seen; but the line is a promising one, and should we be so far favoured as to meet again in the fields, under sunny skies, I anticipate much pleasure in pursuing the subject with you in the happiest possible way—with the fresh flowers in our hands—all the apparatus requisite being simply a magnifying glass and a pin.

LARGE POTATOES, "FLOUNDERS."—One of the largest and most generally grown early Potatoes in Ireland is, perhaps, the



Fig. 44.
Stem and Honey-saucer
of the Touch-me-not.

Flounder. It is, however, comparatively tender, and one of the first always attacked by blight, but its early use and maturity enables it to be consumed before any sensible harm is done by the disease. Here they are an enormous crop. I weighed the produce of one root, six large tubers, rejecting the smaller, and found it to be 7 lbs., one tuber weighing 1 lb. 6 ozs. To-day the largest Potato I ever saw, a Flounder, weighed 2 lbs. exactly.—W. J. M., *Clonmel*.

CRYSTAL PALACE FRUIT SHOW.

THE annual Fruit and Cut Flower Show at Sydenham was opened on Wednesday last, the exhibits being fairly numerous in most of the classes. In those devoted to fruit Grapes were by far the most strongly represented; Peaches, Nectarines, and Pine Apples being also well shown. Cut flowers were abundant and occupied a considerable space. The short time at our disposal only enables us to give the names of the principal exhibitors in the several classes.

In the chief class for a collection of twelve dishes of fruit the first prize was obtained by Earl Somers, Eastnor Castle, Ledbury (gardener, Mr. W. Coleman), with fine bunches of Black Hamburg and Muscat of Alexandria Grapes, the former well coloured and ripe. Lord Napier Nectarines and Bellegarde Peaches of fine size and colour were the most noticeable of the other dishes. Earl Brownlow, Ashridge Gardens, Berkhamstead (Mr. G. Sage), was a good second with fine Peaches. These were the only two exhibitors. For a collection of eight dishes there were five entries, the chief prize being secured by Lord Suffield, Gunton Park, Norwich (Mr. Allan), with well-ripened fruit; R. Leigh, Esq., M.P., Barham Court, Maidstone (Mr. C. Haycock), being a close second; and Lord Calthorpe, Winchfield, Hants (Mr. Thos. Jones), third.

Grapes were moderately well shown, the black varieties being especially fine in the winning collection. In the classes for black Grapes the successful exhibitors were Mr. Roberts, Gunnersbury Park; E. M. Mundy, Esq., Shipley Hall, Deiby (Mr. Elphinstone); J. L. Lovibond, Esq., Start's Hill, Farnborough, Kent (Mr. G. Tucker); Mr. Coleman; Mrs. Lambert, Bletchingley (Mr. J. Goldsmith); H. Harris, Esq., Steventon Manor, Micheldever (Mr. E. Crump); and Birket Foster, Esq., The Hall, Witley, Surrey (Mr. F. Jordan). In the five classes there were twenty entries. In the class for ten varieties Mr. Elphinstone was first with good black Grapes, but the white varieties were not first-rate. Mr. Henry Apted, Broadwater, Worthing, Sussex, was second with smaller and less well ripened specimens. Four collections of five varieties were staged, Mr. Allan and Mr. Tucker being the winners. F. F. Halsey, Esq., M.P., Gaddesden Place, Hemel Hempstead (Mr. H. Folkes), was first with the heaviest bunch of Grapes—viz., Trebbiano, 5 lbs. 7 ozs., Mr. Coleman following with a bunch of Black Hamburgs weighing 5 lbs. 6 ozs. White Grapes were poorly represented, Messrs. Folkes, Elphinstone, Coleman, and Allan being the chief prizetakers. Mr. W. Allan sent bunches of a new black Grape named Chatsworth Seedling, which appeared to be distinct and meritorious, the flavour being good, the berries long, and the bunches large.

In the two classes for Pine Apples there were nineteen fruits shown, generally of fair quality and size. The prizetakers for a single fruit of the Queen variety were L. J. Baker, Esq., Haydon Hall, Eastcote Pinner (Mr. J. Fry); and C. R. M. Talbot, Esq., M.P., Taibach, South Wales (Mr. J. Muir). For a Smooth Cayenne Earl Fortescue, Castle Hill, South Molton, North Devon (Mr. David Wilson), was followed by Mr. Muir. Nineteen fairly good Melons were staged in the two classes devoted to them. With scarlet-fleshed varieties Sir W. Farquhar, Bart., Polesden, Dorking, Surrey (Mr. O. Goldsmith), was first, followed by J. T. Drake, Esq., Amersham (Mr. T. Bailey). The Baroness L. de Rothschild, Gunnersbury Park (Mr. J. Roberts), was first with a green-fleshed variety; and W. Spottiswoode, Esq., Coombe Bank, Sevenoaks (Mr. J. Bolton), was second. Nectarines were represented by ten single dishes and three triplets, the prizetakers being in the former Mr. Coleman and Mr. Allan with well-ripened fruits, and in the latter Mr. Coleman and the Rev. W. Sneyd, Keele Hall, Stafford (Mr. Wallis). Peaches were generally fine, Mr. Roberts and Mr. Coleman taking the prizes in a class of seven exhibitors. Plums were moderately good, there being seventeen competitors in two classes; Mr. Bailey, Mr. J. Fry, and Mr. Sage being the prizetakers. Figs were shown by Messrs. Sage, Allan, and Coleman in fair condition.

Cut flowers were numerous and remarkably bright, Dahlias being especially notable. The chief prizetakers in these classes were H. Glasscock, Esq., Bishop Stortford; T. Anstiss, Esq., Brill, Bucks; Mr. H. Cannell, Swanley, Kent; and Messrs. Keynes & Co., Salisbury. Messrs. Kelway & Son, Langport, staged the best collection of twenty-four Gladioli spikes; the Rev. H. H. D'Ombra, Westwell Vicarage, Ashford, Kent, also being first in the class for twelve spikes with remarkably fine specimens. Several tasteful arrangements for table decorations were shown. Messrs. Dick Radclyffe & Co., High Holborn, were placed first; and Mr. Thos. Butcher, Florist, South Norwood, second. Bouquets were also good.

The miscellaneous exhibits were very numerous. Messrs. H. Lane and Sons, Great Berkhamstead, sent some fine specimens of Vines in pots. Messrs. Kelway & Son, Langport, exhibited a fine collection of

Gladioli spikes, also flowers of Dahlias and Asters. Messrs. Carter and Co., High Holborn, contributed a number of Lilliums, Hollyhock blooms, Cockseombs, and Dahlias.

THE POTATO DISEASE.

I SEE by No. 7 of your valuable Journal that "A KITCHEN GARDENER" does not agree with me in my statement that about half the losses by the disease arises from the want of knowledge, &c., of the growers. I do not expect everyone to take the same view that I do, and I should be content to allow this little difference of opinion to pass without comment, but the interests at stake are so vast that I think I should be wrong in doing so. Our losses last year by the disease were estimated at no less than fifteen millions sterling; and this year there is again an outcry about the disease. Are we to go on like this and do nothing? "KITCHEN GARDENER" thinks that everything depends on the weather and the elements, and that we have nothing to do but fold our hands, *à la Turc*, and take what Providence is good enough to send us; and "LINCOLNSHIRE POTATO GROWER" is pretty much of the same opinion. I do not take this view. We have been following a waiting policy for the last thirty-five years, and what good has come of it? It is time to wake up now and do something to lessen these terrible losses. That these losses can be much reduced I know by what takes place every year under my own eyes, so that I cannot be deceived. I am not well enough to go further into this subject at present, and will conclude with the following extract from a leading article in the *Times* of the 19th of August—"Fortunately for those who can afford it, unfortunately for the cause of science and for the public weal, it has always been possible to obtain good Potatoes at Covent Garden or of any ordinary greengrocer. If they are not to be got at home, they come in from abroad, and the households that pay, without scrutiny, a pound or two every week in the single item of vegetables are not the friends of inquiry and improvement. But the mass of consumers and of growers have been equally apathetic. The ordinary gardener has gone on from year to year planting the same sort in the same plot of ground, always selecting the smaller tubers as being good for nothing else. Seed Potatoes are the worst Potatoes of the crop, and though it is constantly affirmed that the size makes no difference, it must be admitted that the belief wants the justification of results. Upon the whole, there is no matter of equal importance on which there has been less inquiry, less experiment, and less application of intellect."—THE WRITER WHO FOLLOWED "W. B. W."



MUSHROOMS.

MATERIAL should be collected to form beds to afford a supply of Mushrooms by the time the outdoor beds are exhausted. There is no question as to droppings daily collected from horses kept on hard food, and spread out thinly under cover, being the best material for the purpose, continuing this until a sufficient quantity is collected, and then throwing it into a heap to induce fermentation. When that has taken place and before the materials are highly heated turn them over, finally placing them in the bed to a depth of 20 to 24 inches, well beating them down. A thermometer with the bulb 4 inches beneath the surface will show the temperature of the bed, the maximum being attained in about a week, when if it is not likely to exceed 90° the spawn may be inserted at once. It should be in pieces about 2 inches square, and placed 9 inches apart every way, only so deeply as to be covered with the material, beating the bed to render it firm after the spawn is inserted. In the course of a week or ten days cover it 2 or 3 inches deep with good turfy loam, which should be sufficiently moist to be easily beaten into a firm mass, making the surface smooth with the back of a spade. Over this a layer of coarse hay or soft litter about 6 inches thick may be placed, which will maintain uniformity of moisture and prevent the surface cracking; but it should only remain on until the Mushrooms begin to appear, when it must be removed and the soil kept constantly moist. The temperature should be kept equable at 55°, though with a house that is kept at 50° naturally no fire heat will be necessary, but it is essential that the latter

be the minimum to ensure a continuous supply of Mushrooms during the winter months. The time and trouble of collecting the material may be dispensed with where there is a sufficient accumulation in the dung yard in the course of a fortnight or three weeks to allow of the short material being shaken out, which may be formed into beds 18 to 24 inches deep, and when heated can be beaten down and otherwise treated as before advised. If the material shaken out be light about a sixth of turfy loam may be added before placing it in the bed.

FRUIT HOUSES.

Peaches and Nectarines.—The trees in the earliest-forced houses will soon be shedding their leaves, and as soon as those are all fallen the shoots may be loosened from the trellis to have it painted, and the woodwork of the house also, thorough cleanliness being of first importance in the forcing of fruits. When any renovation of the borders has to be done it should be attended to as soon as the leaves show indications of falling, and where new borders have to be formed the necessary material should be collected and stacked for future use. Peaches and Nectarines do best in rather strong loam, and if of a chalky or a calcareous nature all the better. The top 3 or 4 inches of grass or pasture land without the addition of manure is the most suitable. Soil deficient in calcareous matter may have a tenth of chalk or old mortar rubbish mixed with it, and light soil should have an admixture of about a sixth of clay. The border must be efficiently drained with about 9 inches of rubble, and have drains to carry off superfluous water, 24 to 30 inches depth of border being sufficient; and should be so arranged that the trees for forcing may be planted inside, allowing the roots to extend in outside as well as inside borders. For early forced Peaches and Nectarines planting should never be delayed longer than the end of September. As the fruit from the succession houses is cleared off thin out all shoots not required, so as to admit all the light and air possible to those left for the purpose of properly maturing the wood. Syringe the trees to keep red spider in check, and see that the inside borders do not lack water, admitting air freely, and in case of the wood not ripening well a gentle fire heat will be an advantage, air being admitted night and day.

Pines.—Suckers obtained from the summer fruiting plants will soon be ready to be repotted. Transfer the strongest to pots 10 and 11 inches in diameter according to the variety, affording the plants a position near the glass in a light airy house, keeping them gradually growing throughout the winter months, under which conditions they start into fruit readily about the following May or June, and afford a good supply of early autumn fruit. The remaining portion of the plants above referred to should be wintered in 7 or 8-inch pots, and placed in larger pots in spring. These, with suckers of Smooth-leaved Cayenne and Charlotte Rothschild started last March, will without much difficulty provide a successional supply of ripe fruit throughout the winter months, and be supplemented by Queens and other varieties which were started at the same time. At this period of the year it will be necessary to effect a re-arrangement of the plants which were started as suckers last autumn, many of the free-fruited varieties now having fruit swelling off; and these should be separated from the others, as plants not in that condition will by this time have completed their growth, and will more readily start into fruit at the required time by subjecting them to more liberal ventilation during the next six weeks when the temperature exceeds 80°, the temperature at the roots being kept at 75° to 80°. For plants that have been recently repotted 90° at the roots is suitable, but for plants well established a mean of 80° is best. When fruit is swelling off the atmosphere should be kept moderately moist, and a little air admitted at the top of the house early in the morning to dispel superfluous moisture before the sun's rays act powerfully on the fruit. Ripe fruit required to be kept should be moved to a shady house and have abundant ventilation. Shading should be dispensed with except for rootless suckers.

PLANT HOUSES.

STOVE.—Ixoras that have been employed for conservatory decoration must now be placed in warmer quarters; the rest they have had whilst in the cooler house will be sufficient for them. All the old flowers should be cut off, and if there be any mealy bug or scale give a good dressing with an insecticide. Clerodendrons, Bougainvilleas, and similar plants that have whilst flowering been placed in a cool

house must now be removed to a warmer situation, but not where they will receive so much heat as to excite growth, and should have a drier atmosphere to ripen the shoots, supplying water only to prevent flagging. *Medinilla magnifica* when in a moist high temperature grows freely, but does not flower well; but in plenty of light and not too much heat it flowers freely both from the current year's and the old growths. It should now be kept drier, ceasing to syringe it, and watering only to maintain the foliage in good condition. *Æschynanthuses* coming into flower must not be neglected with water, or the probability is the flowers will drop when showing.

Amaryllises.—The growth of many of these fine spring-flowering plants will be complete, and they should have a house with plenty of light and air, so as not only to thoroughly ripen the growth, but increase the size of the plants and induce free flowering; indeed they should be grown under conditions favourable to the solidification of the growth all through its formation—a matter of great importance; and instead of drying them off, as is often done, water should be given so as to keep the soil moist.

Achimenes and Gloxinias.—Plants that have nearly done flowering are often placed under shelves or in cool houses, where they are allowed to remain until the weather becomes cold, and are then removed to a warmer position; the consequence is the corms are very small and weakly. Instead of removing the plants from the light they should be kept close to the glass with the temperature necessary to grow them in, and have sufficient water to keep the soil moderately moist until the corms are matured and the tops have died down. If any varieties of Gloxinias are required to be increased, the matured leaves may be inserted round the sides of pots well drained, and filled with sandy loam or peat, with half an inch of sand on the surface, and being kept rather close and moderately moist they will form young plants. Scarce varieties may have the leaves laid flat on the surface of the pots, severing the midrib nearly through on the under side three or more times, placing a small stone on the top of the leaf over each cut.

Euphorbias and Poinsettias.—Plants that were moved some time ago from heat into cooler quarters must not be allowed to remain too long; or the roots will decay, and the plants will dwindle away when they should be starting into bloom. They should have a house or pit kept at 55° at night, with plenty of air and light. Poinsettias that have been planted outdoors or placed in cool pits must at once be moved indoors; and those planted out should be lifted with as little mutilation of the roots as possible, and potted in well-drained pots in a mixture of turfy loam and leaf soil, keeping them close, shaded, and moist until established. These plants cannot have too much light and air, the temperature being kept from falling below 55°.

Winter-flowering Plants.—The earliest batch of *Plumbago coccinea* *superba*, *Eranthemums*, *Thyrsacanthus rutilans*, *Centropogon Lucyanus*, &c., will by this time have filled the pots with roots, and should be supplied with liquid manure, and be kept near to the glass in a light house or pit, with a free circulation of air, so as to induce stout short-jointed growths, and with these well ripened a full complement of bloom may be expected, it being useless to expect well-developed flowers from puny plants. Winter-flowering Begonias should be potted without delay, and be grown in a light position.

NOTES ON VILLA AND SUBURBAN GARDENING.

KITCHEN GARDEN.

Onions.—If those to stand the winter are not already sown the operation should no longer be delayed. Select open ground, which should be well manured and deeply dug, heavily trampled, and raked. Draw shallow drills about 10 inches apart, water them if at all dry, sowing the seed thinly a few hours later, trampling it in and raking over. The white Tripoli varieties, such as the Early Naples or Early White Italian, are the earliest and mildest in flavour, and the Brown Tripoli and Giant Rocca grow to a great size and are the best keepers. Assist the ripening of the spring-sown varieties by twisting down the tops of those that require it, and those with their tops dying should be pulled and laid on a dry base in the open to thoroughly ripen, and thereby improve their keeping qualities.

Cabbages.—Seed may yet be sown, as although the plants obtained will not be strong enough to put out this autumn they, if properly thinned, will stand the winter in the seed bed and may prove useful for planting the following spring. Prick out the seedlings obtained from early sowings, as strong sturdy plants will be found to succeed best. There is a prospect of the ground at present occupied by the spring-sown Onions being at liberty in good time to admit of Cabbages being planted on it, and will be found very suitable. Unless exceptionally hard, digging is unnecessary; merely hoe the ground and rake off the rubbish, then draw drills about 3 inches deep, plant firmly with a trowel, and water in. The rows for the strong-growing sorts, such as Early Enfield, Early Heartwell Marrow, and The Battersea may be placed 2 feet apart and the plants 18 inches apart, provided large heads are required; but on good ground, as a rule, 1 foot apart in the rows will give the best returns. The smaller varieties may be planted 15 inches apart each way, or the rows 18 inches apart and the plants thicker in the rows.

Cauliflowers.—Seed should now be sown for the earliest crop next season. Select an open spot and sow thinly, in order to have strong plants for wintering in boxes and frames. The Early London and Dwarf Erfurt Mammoth are both suitable, giving the preference to the latter.

Spinach.—The present is a good time to make a sowing of either round or prickly Spinach to stand the winter. Select ground that was well manured for a previous crop of any kind, break it up thoroughly and deeply, make it tolerably firm, and sow thinly in drills 10 or 12 inches apart. Where this crop has previously failed on the level it is advisable to try a sowing on a raised south border.

Celery.—Some of the earliest is now being earthed up. Previously to the commencement of this operation it is a good plan to lightly cover the soil in the trench with a mixture of soot, lime, and a small quantity of salt, which watered in will act as a manure and also prove obnoxious to insect enemies. The earthing-up should be done gradually at intervals of a few days. First pull off all side growths, then tie up with matting a little above the hearts and earth nearly up to the ties, which should be then taken off, the operation to be repeated as the heart advances. Give the later plants abundance of moisture at the roots varied with liquid manure, and to prevent rapid evaporation and also their opening-out and consequent splitting of the stalks when tied up, work in about 2 inches of fine soil around them.

Keep all the side shoots closely rubbed off the stems of the Tomatoes, but do not denude the main stems of their foliage as yet. During hot dry weather they require plenty of moisture and rich food at the roots, or the fruit will be small. Thin out Endive, and transplant if more is required, and sow the black-seeded Cos Lettuce, Hicks' Hardy Cos, and any of the hardy Cabbage varieties of Lettuce to stand the winter. Insects and birds are more destructive to these than is the frost. Any vacant spots may be sown with Turnips, as they do not impoverish the ground and may prove serviceable.

GREENHOUSES AND FRAMES.

Stage Pelargoniums.—No time should be lost with regard to pruning the well-ripened plants of these. Cut back the young shoots to within three joints (two if they are weak) of their starting point this season, thinning out the old wood where crowded, and shortening-in where straggling, the aim being to obtain a neat head with a few strong shoots. Withhold water till they start afresh, and before they have made much progress shake the roots clear of the soil, shorten them back considerably, and repot in small pots. The pots must be clean and well drained, and employ soil consisting of two parts good loam to one of leaf soil, with a good addition of road grit or sand. Place the plants in a cold frame, keep them dry for a week, avoid shading, and ventilate freely. Cuttings may be inserted at pruning time, and may be treated similarly to the bedding Pelargoniums.

Calceolarias.—The present is a good time for sowing seed of the herbaceous section. Employ either 6-inch pots half filled with drainage or well-drained shallow pans. Over the drainage place moss or rough soil. Fill up with a mixture of three parts fine sandy loam to one of leaf soil, finishing off evenly and firmly. Over this dust some sand and water thoroughly through a fine rose, and allow it to stand say through the next night; then sprinkle over a little sand, and into

this press the seed with a small clean flower pot, and sprinkle over a little more sand. Place the pots or pans on a bed of ashes in a shady spot, the north side of a wall being suitable, and cover either with a handlight or a square of glass till the seedlings are up. No watering ought to be necessary till the seeds have germinated. Rather than water the surface soil either before or after the seedlings are up dip the pots or pans in chilled water till the soil is moist.

Cinerarias.—A little seed sown at the present time may furnish a few plants for late blooming, which if small may be useful. They may be sown at the same time and receive precisely the same treatment as advised for Calceolarias.

Propagating Bedding Pelargoniums.—Although the Pelargoniums are now really at their best, they in most instances will have to be propagated at once. The growth made, owing to the showery weather experienced, is of a sappy description—very unsuitable for cuttings, and for this reason propagating has been delayed. The late fine bright weather had a very beneficial effect upon them. Select as much as possible those growths that are really most floriferous, as they will both strike more readily and also make better plants than the succulent undergrowth. In many cases the tops may be cut back to a truss of bloom, which will maintain the display till other blooms have developed. Cut to a joint and trim off the lower leaves and bracts, and firmly fix in light sandy soil, being always careful that the base of the cutting touches the bottom of the hole made by the dibber. Shallow boxes are used where large quantities are grown and where there is plenty of house room for their reception; but in small gardens, where they have to be wintered either in frames or on shelves in greenhouses, 4-inch or 5-inch pots, each holding four or five plants, are the most convenient. They are also less liable to damp off when in pots whether large or small. Drain the pots well, and when filled with cuttings place them in a sunny spot where they can be kept dry, and do not water for at least a week. Commence with the choicer kinds, such as the bronze, silver, and golden-leaved varieties. Strong healthy cuttings of Verbenas dibbled in 5-inch pots, well drained, and filled with light sandy soil and watered in, will strike freely in a close frame or handlight, and will form stock plants for another season.

TRADE CATALOGUES RECEIVED.

Jas. Dobbie & Co. (late J. Dobbie), Rothesay, N.B.—*Catalogue of Vegetable and Flower Seeds.*

Webb & Son, Wordsley, Stourbridge.—*Illustrated Catalogue of Bulbs.*

Le Tall & Davis, 47, Exchange Street, Sheffield.—*Price List of Bulbs.*

Sutton & Sons, Reading.—*Illustrated Catalogue of Bulbs.*



Palm Leaves Scorched (*S. H.*).—The plant requires a more shaded position, and if all the leaves are like the one sent more water at the roots and in the atmosphere also. The leaf is very deficient in substance, and in just such a state as to be liable to injury by a few hours of bright sun. The root-action is defective, but having no data to guide us we cannot suggest what is the cause of this, and consequently are unable to suggest a remedy.

Strawberries, Weight per Acre (*A. B.*).—It is not easy to answer your question, but under ordinary field culture in rather light soil we should consider 1 lb. of fruit per square yard "a fair average crop in a fair average season." This is a little over 2 tons 3 cwt. per acre. Under superior cultivation by trenching and manuring Mr. Lovel of Weaverthorpe has, we believe, gathered 3 lbs. of fruit per square yard.

Potatoes, Weight per Acre (*Idem*).—Six to seven tons per acre is a good average crop under field culture in ordinary soil and seasons. Under very favourable circumstances we have often known yields of 10 tons per acre. The quantity of seed for planting an acre depends entirely on the size of the tubers and the distances they are planted. Some growers will plant an acre with 8 cwt. of small tubers, while others will use half a ton or more of larger sets.

"Green" Gooseberries (*Idem*).—Whitesmith and Crown Bob are popular varieties with growers for supplying the markets with green fruit early in the season. The following are also valuable for this purpose—Antagonist, Companion, Gunner, and Clayton.

Deodorising Sewage (*S. K. T.*).—You cannot adopt a simpler and better plan than to have a heap of freshly slaked lime near the cesspool, and when the contents are being emptied use the lime liberally as the work proceeds. This is the plan adopted in large towns, and when well carried out no cause for complaint arises.

Parsley-leaved Elder (*F. H. R.*).—The sprays sent are of the above Elder (*Sambucus nigra laciniata*), and if the tree has not been planted in the place in which it is growing it has probably sprung from a seed that has been carried by a bird from a fruiting specimen in some adjacent garden, perhaps from your Grace's own pleasure ground.

Vegetable Marrows not Setting (*J. W.*).—There may be a deficiency of pollen, and the flowers are not fertilised. If you apply the pollen from the staminate to the pistillate flowers, cut the tops off the exuberant growths and keep the plants well supplied with water, we think the fruit will set and swell freely. Artificial fertilisation is seldom needed when the staminate flowers are numerous, but when they are few in number such manipulative aid is often requisite. Are the growths of your plants thinly trained? Overcrowding would cause the evil of which you complain.

Heating Stove (*C. B.*).—To heat the proposed stove you will require four rows of 4-inch pipes along the front and at one end; you already have a flow and return at the other end, from which take the pipes for heating the stove, branching from near the front of the house, so that it will be possible to have the stove and vinery heated separately or together by fixing valves on both the flow and return pipes where they join the mains, as when the Vines in the house to the right of the stove are forced you will have too much heat in the stove, especially in summer. With the valves the temperature may be regulated as required. The additional piping is not great, so that the boiler will probably heat it satisfactorily.

Destroying Earwigs (*K. A. T.*).—We have not had experience of the effects of nicotine soap on earwigs and ants. It is worth trying, syringing the climbers at night as you propose, and if it does not kill the pests it will probably considerably check their attacks. Use it at a strength of 4 or 5 ozs. to the gallon of water.

Annuals for Spring Flowering (*Idem*).—Seed of *Saponaria calabrica*, *Silene pendula* and its variety *compacta*, which are amongst the most hardy and useful for spring bedding, should be sown at once. *Nemophilas*, *Larkspurs*, *Collinsias*, *Limnanthes Douglassi*, *Lasthenia californica*, *Campanula pentagonia*, *Clarkias*, and other free-growing annuals are preferably sown from the 6th to the 10th of September in your district, as if the plants make too much growth before winter they are liable to be killed. Sow the seed thinly in drills a foot asunder, and immediately the plants can be handled thin them out to enable them to assume a sturdy habit of growth. The ground should be made firm, and a sharp look-out must be kept for slugs. The site of the seed beds should not be near old walls or crops that are likely to afford harbour to slugs and snails.

Men Required in Garden (*T. H.*).—Even when particulars are sent of the size and number of the glass structures, the arrangements of the garden, and nature of the soil, such questions can only be answered approximately. As you have stated your question it is quite unanswerable. You do not give the size of any of the forcing houses, vineries, or pits, but only mention a "large conservatory, 27 square feet." As this would only represent a house 6 feet long by 4½ wide it can scarcely be termed "large." If you will send us the accurate dimensions of all the houses and pits we will endeavour to answer your question.

Dionæa Muscipula Culture (*Idem*).—Anyone possessing a warm greenhouse may, with a little care, succeed in growing *Dionæa muscipula*. It is a native of Carolina, North America, where it grows in marshes or bogs. The soil best suited for it is sandy peat, with a little finely chopped sphagnum moss. After being put into well-drained small pots a slight covering of live moss should be laid on the surface. They should be then placed on a shelf in an ordinary greenhouse exposed to the full force of the sun. As they require a good deal of water a layer of moss should be placed on the shelf and the pots slightly plunged in it, the moss being kept moist, which is preferable to placing them in flats of water, as in this manner the soil is not so apt to sour. When the leaves commence decaying withhold the water, but never let them dry-up entirely.

Peas (*G. C.*).—It is impossible for anyone to identify Peas by merely seeing the pods, and your description of the plants does not aid us in the matter, for many Peas grow 6 to 8 feet high, bear heavily, and are of superior flavour. You do not even say whether the seed is wrinkled or not. The appearance of the Peas in a green state, and your description of them, leads us to suppose the variety is not distinct, but a form of the useful *Pea Ne Plus Ultra*. The pods sent are small in comparison with those of new Peas that are sent out now-a-days, but we do not doubt the variety is a very good one.

Fungus on Rose Trees (*General Davies*).—The leaves sent are not infested with red spider, but are seriously attacked with the black fungus. Syringe the trees with a strong solution of soft soap—5 or 6 ozs. of the soap being dissolved in a gallon of water, and apply it at a temperature of 120°. Nicotine soap of the same strength would answer equally well. Sponging the leaves with 2 ozs. of blue vitriol (sulphate of copper) dissolved in hot water, and added to 2 or 3 gallons of cold water, will also destroy the fungus. Possibly your Roses need more support, such as liquid manure; the fungus is generally the worst on Roses that have partially exhausted the soil, but there are exceptions to this rule.

The Cherry Plum (*F. H.*).—This is the name of the Plum of which you have sent fruit; it is also known as the Early Searlet, Miser Plum, Myrobalan, and Virginian Cherry, and is described as follows in Dr. Hogg's "Fruit Manual." Fruit medium sized, cordate, somewhat flattened at the stalk, and terminated at the apex by a small nipple, which bears upon it the remnant of the style like a small bristle. Skin very thick and pale red, covered with small greyish white dots. Stalks three-quarters of an inch long, slender, and inserted in a small cavity. Flesh yellow, sweet, juicy, and subacid, adhering to the stone. It may be used in the dessert more as an ornamental variety than for its flavour, but it makes excellent tarts. Ripe in the beginning and middle of August. The young shoots are smooth, slender, and thickly set with buds. This is the *Prunus myrobalana* of Linnæus. It is frequently grown in shrubberies and clumps as an ornamental tree, where in spring its profusion of white flowers render it an attractive object.

Forcing French Beans (*T. H. S.*).—The exuberance of the growth may arise either from the soil being too rich and light, the insufficiency of light, or an unsuitable variety being grown. We do not think your proposed mode of raising the plants would be any improvement on raising them in small pots and planting out. Allow them a little more room, make the soil somewhat firm, have them as near the glass as possible, and let the glass be washed clean, then by maintaining a right temperature and ventilating judiciously you ought to secure good crops. The flower you have enclosed is *Hypericum calycinum*, hardy species, which succeeds well under the shade of trees.

Plum Leaves Discoloured (*G. B. C. W.*).—There are no insects on the foliage to account for the glaucous appearance of the leaves, nor can we inform you of the cause of their present condition. You do not state whether the tree has grown freely or not, nor whether the soil is well drained. The trees, which

you state are growing healthily and bearing freely in brick rubble and sand, indicate that the soil in which the affected tree is planted is too rich and moist. You cannot err by lifting the tree in the autumn and placing the roots in fresh soil, to which has been added some rough gritty material, such as old lime rubbish, broken bricks, or roadside scrapings. If the tree is crowded with growth thin-out the shoots now, so that the sun and air can have access to those remaining to promote their maturation.

Vines in Pots (*Forkshire*).—As you cannot keep the Vines during their resting period in a temperature of 50°, and as you have no cooler house for them, you must winter them out of doors. Drying the roots in the autumn and winter is a most injudicious mode of resting Vines. The roots should be in moist soil always, but never saturated. Retain the Vines under glass until the wood is hard, brown, and ripe, and the foliage shows signs of changing; then remove them to the open air, securing them to a wall or fence having a southern aspect. As soon as the foliage falls prune them, cutting off each side growth to a bold eye or bud as near the main stem as possible. Such a bud can generally be found about an inch from the base of each lateral; shorten also the leading cane, leaving from 1 to 3 feet as is most convenient for the size of your house. After pruning again, secure the canes to the wall, and pack leaves, litter, or ashes thickly round the pots and over the surface to exclude frost, which is liable to both break the pots and injure the roots. Place the pots on bricks to prevent worms entering them, and your Vines will be safe; or if the frost should be unusually intense they can be easily made so with a little covering. Well-ripened wood of the Vine, is, however, quite hardy. When the Vines commence growing in the spring see that the drainage is in good order, remove the surface soil, and dig out as much of the soil down the sides of the pots as possible, and add fresh loam mixed with a little bone dust and plenty of wood ashes, pressing the compost down firmly; or you may, if convenient, shift the Vines into larger pots. Vines in pots do not usually succeed nearly so well the second year as the first, though sometimes they afford useful bunches.

Names of Plants (*A. B. C.*).—1, Very insufficient for identification, but is apparently a portion of a Palm leaf, probably a species of *Phoenix*; 2, Resembles *Adiantum Capillus-Veneris*; 3, Cannot be named without flowers. (*J. Mark*).—*Minulus cardinalis*. (*G. T. B.*).—*Hippophaë rhamnoides*, the Sea Buckthorn, (*W. H. Crossley*).—*Rhus Cotinus*, which is also known as the Venice Sumach. (*G. B. C.*).—1, *Goniophlebium subauriculatum*; 4, *Asplenium bulbiferum*; 2 and 3 were too withered to be identified. (*Lady King*).—The tree is *Acer campestre*. (*Inquirer*).—1, The plant growing through the Mediterranean Heath is *Sisyrinchium anceps*, a native of Bermuda, a small ornamental plant, frequent in gardens; it produces seed abundantly, and it has become naturalised in some parts of Britain; 2, *Lysimachia quadrifolia*, Four-leaved Loosetrife, a North American species; 3, *Erigeron purpureum*, Purple Erigeron; 4, *Epipactis palustris*, Marsh Helleborine, a handsome British Orchid, growing abundantly among the sand hills in Lancashire, but it is not confined to the seacoast, but is frequently found inland, as at Knutsford Bog in Cheshire, growing along with *Orchis latifolia*, *Gymnadenia conopsea*, and the Marsh Fern, *Lastrea thelypteris*. (*W. H. Myers*).—1, *Lythrum Salicaria*; 2, *Campanula muralis*. (*A Subscriber*).—We cannot identify the specimen without flowers. (*Plant*).—*Diplacus glutinosus*.



POULTRY, PIGEON, AND BEE CHRONICLE.

THE CROSS-BREEDING OF SHEEP.

THIS subject has received more or less attention from agriculturists for a long period, but we do not find that cross-breeding was much attended to until the early part of the present century. During the eighteenth century we find that some sheep-breeders were extremely jealous of maintaining the purity of the principal breeds, such as long-wools, short-wools, black or white-faced sheep, horned or hornless races. A remarkable instance of this occurs in the history of the so-called New Leicester sheep, brought to great perfection by the perseverance of the celebrated Mr. Bakewell of Dishley. He commenced his career in 1760, and let his first ram for the season for 16s., whereas in the year 1786 he obtained three hundred guineas for one ram. To exhibit the decided temper of sheep-breeders at that time a club was formed called the Dishley Society, the object being to insure the pure breeding of Bakewell's type and style of Leicester sheep, for which purpose a code of rules and regulations were formed and made binding upon all its members to carry out certain conditions, all intended to maintain the purity of the Leicester breed. History or tradition, however, fails to supply us with particulars of the origin of many of our various breeds of sheep; but no doubt for many centuries after the time of the Romans in this country certain distinct breeds were perpetuated with but little improvement and little change.

In giving our opinions upon the policy of cross-breeding one thing must be borne in mind—that pure breeds or animals of

a certain fixed type and established character must be maintained, or our materials for crossing and improving certain varieties of sheep cannot be mingled with advantage. Whatever objects may be in view by those who cross-breed it is very desirable that they should assume some distinct form, for some farmers are in the habit of using crosses in their flocks, having no object in common. We will endeavour to define some of these objects. First we have those who mix the breeds with the view of improving only the sort which they have chosen as best adapted to the soil and climate in which they are reared; secondly, some think they can see their way to establish a new breed or type altogether; and thirdly, we frequently see sheep of mixed breeds, which are reared entirely with the view to making more profit by the produce of stock the result of a single cross. Now, we hold that the first two are not only of the greatest consequence, but also of the greatest difficulty practically, and requiring most judicious and careful management, and in either case within our knowledge only a few have succeeded in the accomplishment of their object. We propose to give the home farmer well-authenticated statements of the method pursued by those who have succeeded in effecting their object.

Let us take first for consideration the methods adopted by crossing or mixing the breeds of sheep for improving the character of sheep without any material alteration of type or style, taking first the long-woolled breeds. We must here remark the singular and decided advantage of using rams raised from stock so long maintained in purity like the Leicesters, as reared by Mr. Bakewell for so many years, and again by Mr. Valentine Barford of Fosote, near Towcester. Since the year 1810 the latter had bred entirely from his own flock up to about the year 1856, without any interchange of male or female from any other flock. We have heard him say "that his flock being bred from the nearest affinities, commonly called in-and-in breeding, had not experienced any of the ill effects ascribed to the practice." It is very well known that these pure-bred Leicesters have furnished the materials for improving the quality and wool of nearly every long-woolled breed where the rams have been judiciously used, including the Cotswolds, the Lincolns, the Cheviot, the Romney Marsh sheep, the Devonshire South Hams breed, and the long-woolled sheep of Ireland. All these have been much improved by the Leicester blood. In nearly every instance, however, the original size of the animals has been reduced, but the aptitude to fatten and the quality of the flesh has at the same time greatly increased, and with the further advantage of earlier maturity in the animals.

We must next refer to the South Down sheep, whose long line of descent can be traced from a period previous to William the Conqueror. It is without doubt one of the purest and unmixed breeds in the kingdom, as well as one of the most valuable. The uplands of Sussex is the native locality of the breed, and their first improvement was due to a Sussex man—Mr. Ellman of Glynde. He never exhibited his stock at any of the prize meetings, being intent only on being considered a careful breeder, to whom the farmers could resort with safety. Mr. Grantham of Lewes exhibited this breed, and for some years carried off the greatest number of prizes at the Smithfield cattle shows at Christmas. The exertions of another breeder soon after gained him great notoriety; we refer to Mr. Jonas Webb of Babraham, Cambridgeshire, who in a most remarkable manner proved himself by far the most successful breeder of South Downs, and whose system of breeding and selection increased the size of the animals without losing their quality. Since the late Jonas Webb's time the quality of the breed has been well maintained by the flocks of Lord Walsingham, the Duke of Richmond, and others; but we think they have lost both length and size. The effect of crossing with the short-woolled breeds has been marvellous, for the South Downs have been the means whereby various new types of sheep have been formed which have risen into celebrity within the past thirty or thirty-five years. Some of these now rank amongst our most useful sheep stock, such as the Shropshire, the Hampshire, and the Oxford Downs, each of which have within the last twenty years been admitted into the prize list of the Royal Agricultural Society of England. Previously the short-woolled sheep of nearly every breed were exhibited together, making it a very difficult task for the Judges, for on some occasions there have been sixty or seventy animals in the shearling ram class at the royal meetings. These singular competitions led to great good, for it induced the Society to encourage by their prizes the improvement and extension of these most valuable breeds of sheep. The South Down sheep are now to be found in nearly all parts of England, Scotland, and Ireland, and where the climate and soil is favourable they have not failed in giving satisfaction. They have to a great extent supplanted the native breed of black-faced horned sheep of Norfolk, also those of Cambridgeshire, Hampshire, Wiltshire,

Dorsetshire, and Berkshire, as our observations will fully explain when we enter upon that part of our subject relating to the method pursued by which the original breeds were crossed out.

The horned breeds of sheep, which are original and still existing in their ancient character, are interesting, if it were only for the fact of their holding their position whilst the great changes have been proceeding, and in which so many sorts of sheep have been lost altogether. The black-faced horned sheep have maintained their position against all comers in their native districts—the mountainous portions of Scotland and the northern counties of England, where they are always exposed to cutting winds, and being a hardy race they will live upon the poorest mountain herbage including the heather, and where no other breed could do so well. The small white-faced horned sheep are also noteworthy; they are natives of the Exmoor and Dartmoor districts, the Isle of Portland, some other western districts of England, and part of Wales, where they have held possession of the scanty pastures from time immemorial. The Exmoor breed in the hands of Mr. Merson and others have been greatly improved by selection only, and the sheep have been exhibited at Smithfield fat stock shows as miniature models of fat sheep. Lastly, there is a breed of horned sheep at once the most ancient, valuable, and purest of all the native breeds, namely the Dorset and Somerset horned stock, which have been always celebrated for yielding early lambs. When we first kept the Dorset breed in 1826 they were rather small, with a black speckled nose; these, however, have been merged in the large and splendid horned sheep called the Somerset with pink noses and most correct form, with excellent quality, good wool, and the carcase wide, long, and deep. They have also the character of being the best of mothers for rearing lambs, and will rear a greater number of twins than any other description of sheep.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The harvesting of grain and pulse crops and also the crops of second growth of Clover will engage both men and horses, for in nearly every district the cutting of corn, &c., with the reaping machine will be proceeding. There is, however, in various parts of the kingdom a considerable portion of the cereal crops so beaten down and damaged by storms that the scythe and fagging hook must be resorted to for harvest work, thus increasing the cost of cutting and tying. In some districts haying and harvesting will be going on simultaneously, thus making it both for men and horses an unusually busy period. The crops of Clover and grasses of every kind are very heavy and gross, and it has lately been found that sheep and cattle, the former especially, have become very relaxed whilst feeding thereon; but in those instances where Saintfoin, and particularly the giant variety, has been seeded with the Clovers, that it has through its aromatic and peculiar qualities had the effect of greatly diminishing or preventing diarrhoea. In the future we recommend the home farmer to substitute Saintfoin for the Rye grasses; this will not only prove a valuable alternation of seeding, but improve the quality and facilitate the making of hay wherever the farm is situated, so that a ready sale of vegetable produce can be effected. The growth of some of the late varieties of Peas is worth attention, for we have seen some extremely fine samples in the pod sold at a high price. The Potato crop is now attracting great attention in consequence of the extraordinary luxuriance of the haulm, especially in the Magnum Bonum and Scotch Champion varieties, and until within the past few days these have in most districts been found free from the disease, but now we have to report a most serious loss by the growing-out or sprouting of the tubers, and likewise an attack of the old disease. The sprouting of the tubers will prevent their sale; we therefore recommend the farmer to use them as food for the dairy cows, and mixed with bran it has been proved to furnish butter of better quality than any other food except grass in good condition. Bran is comparatively dear, but on various farms a portion of the last year's Wheat crop is still in store; and as the sale for it will be worse than ever, in the face of a crop of excellent grain of this year's growth it may be well to crush the old light Wheat, and employ it as food in connection with Potatoes for all animals in the stalls. Two feeds per day may be given to the dairy cows at milking time as a supplement to the grass in the pastures, and in lieu of the purchase of oil cake and other artificial feeding stuffs. The Potato haulm may be cut with the scythe and carted away for pigs in the farmyard and be trodden into manure, the Potatoes being lifted with the Potato plough and used as soon as lifted.

Hand Labour.—The men will be engaged in harvest work chiefly; but the second crops of Clover must be cut and stacked, for it will be all required, as so large a portion of the first cutting has been damaged or spoiled, and upon some farms there will be a scarcity of hay. We have on former occasions spoken of the plan where straw is plentiful of using it in layers in making a rick of Clover hay, because if the hay is carted rather green, it will heat and impart an aroma to the straw, and make it a valuable substitute for feeding when cut into chaff for horses, cows, and cattle in the boxes. Instead of laying the straw loose in the rick, we prefer to tie it into trusses, as it will then not only bear the weight of the Clover without slipping, but will

allow heat to escape from the rick more easily. The shepherd upon many farms will begin to feed his sheep on the early Turnips with a fold at night time; the lambs in particular, where they are to be forwarded for the butcher as tegs, may have a run at daytime upon Clover, Saintfoin, or fresh pasture, or parkland. All the late Turnips which are now fit to hoe must be attended to notwithstanding the heavy pressure of harvest work, and this may be greatly facilitated by driving the horsehoe across the drills, leaving the plants in bunches, which may be singled by hand or hoed out by men according to the labour at command. One thing, however, is certain, that after being horse-hoed between the drills, and then across them, it will prevent the roots from becoming stunted in their growth, and the hand-hoeing may be deferred in some instances until the busiest period is over. We will suppose that all stubble Turnips have been sown. The next move we recommend is sowing Trifolium, which cannot be done too early, because the young plant is the more likely to escape the ravages of the slugs. The winter Vetches, with a few winter Oats mixed, may next be sown; but these matters must not, or ought not, to interfere with the arrangements the home farmer may have previously made for the autumn cultivation by steam power of all land intended for Lent corn or root crops next spring. Upon many farms, owing to a succession of wet seasons, we find that large breadths of corn stubbles are very foul with Couch, Water Grass, Milk Thistles, &c., and much hand labour will be in most cases required to collect and burn, or cart away these weeds, leaving the land to be deeply ploughed after Wheat sowing is over.

THE HARVEST OF 1880.

The *Agricultural Gazette* has published returns of the crops from the English counties, the results of which are tabulated as follows:—

CROP REPORTS FROM ENGLISH COUNTIES, 1880.

Reports.	Wheat.	Barley.	Oats.	Beans.	Peas.
Over average....	18	62	41	35	26
Average.....	81	88	105	67	69
Under average..	65	10	17	16	22
	164	160	163	118	117

The per-centage character of the returns will be seen in the following table, which may be compared with those of the previous years given below:—

PER-CENTAGE REPORTS OF 1880.

Reports.	Wheat.	Barley.	Oats.	Beans.	Peas.
Over average....	11	39	25	30	22
Average.....	59	55	64	67	59
Under average..	30	6	11	13	19
	100	100	100	100	100

On the whole, we must believe that Wheat is considerably under a good average. Barley, Oats, Beans, and Peas are, upon the whole, above an average. The Potato crop, which has been so great, is very far from satisfactory, owing to the very great prevalence of the rot. Root crops, except Mangold Wurtzels, are unusually good, and the later cuts of hay have been admirably secured. How much worse last year's report was than this is better recalled by memory than it is represented by figures. The following tables, however, will be examined with interest, for the contrasts which most of them present with that which represents the crop of 1880:—

PER-CENTAGE RETURNS OF HARVEST, 1879.

1879.	Wheat.	Barley.	Oats.	Beans.	Peas.
Over average....	1	4	20	4½	4
Average.....	24	35	57	29½	97
Under average..	75	61	23	65	66
Total	100	100	100	100	100
1878.	Wheat.	Barley.	Oats.	Beans.	Peas.
Over average....	21	11	22	7	6
Average.....	58	43	50	63	55
Under average..	18	43	28	30	39
Total	100	100	100	100	100
1877.	Wheat.	Barley.	Oats.	Beans.	Peas.
Over average....	3½	10	23	12	8
Average.....	24½	50	49	69	61
Under average..	71½	40	28	19	31
Total	100	100	100	100	100

The *Mark Lane Express* has also published returns, which are substantially the same as the foregoing, and remarks—"If the estimates now framed should turn out to have been well founded, the produce of 1880 will be largely in excess of the extremely meagre yield of 1879. The Wheat crop is below average, Barley is above, and Oats are also a little above an ordinary yield. Beans may be set down as a little above average, and Peas at a little below. There is scarcely a county in which mildew and blight

are not complained of as affecting the Wheat crop, which seems to be the worst corn crop of the year, as Barley is the best. Many of the reports complain that there is an unusually large proportion of shrivelled grain in the Wheats, and that the Barley is small in the grain and discoloured by the wet weather of July. Where the crops have stood well, however, the quality of both Wheat and Barley is good."

BUTTER AT THE CLONMEL SHOW.

THE report of Canon Bagot and Mr. Robertson on continental dairying appears to have already proved of great advantage in Ireland, as may be gathered from the following "judges' report" of the butter at the Show in question. The suggestions embodied in the report are of much more than local value:—"It is a great pleasure to be able to report most favourably of the butter exhibits this year, showing, as they do, a marked improvement in nearly every point that would tend to raise the character, and therefore enhance the price to be obtained for the article by the farmers. The variety and excellence of the exhibits made it a most delicate and difficult task to sift those out for prizes which by their superior excellence deserved such recognition; and we would like to add, for the encouragement of those who were not successful in obtaining prizes, that in a show in which almost perfection in colour, taste, and body had been reached by so many, it was no discredit not to be mentioned, as the slightest deviation from the highest standard of excellence in this Show meant certain defeat. It was noticeable and worthy of remark that there was not a single case of the heavy salting which has been a great drawback in times past to Irish butters when placed in comparison with the milder, and therefore more palatable, article produced and put on the English market by the farmers of Holland, Denmark, and France. We found that great care and attention had also been bestowed on the packages, and considering how important it is that an article like butter should be turned out of hand in a firkin clean, handy, and not unattractive to the eye of the purchaser, we think it well to place on record the very favourable opinion we formed on this important point. In fact, as regards the cooper's art, we agreed that in size, handiness, and workmanship, we might almost say symmetry of proportion, the packages and packing left little to be desired. In conclusion, we feel that if the producers of butter in this country, which is one of the finest butter-producing countries in the world, will only take the butter exhibited at this show as their standard of excellence, and follow it up and keep up such merit in production, they will have nothing to fear from foreign competition on putting it on the English markets. We would almost venture to predict that after they have overcome any slight prejudice there may be existing from bygone neglect, they will catch up and surpass any foreign producers, no matter whence they hail, and bear off the laurels due to the best producer—viz., the highest market price for his production."

THE POULTRY CLUB.

A COMMITTEE MEETING of the Poultry Club was held on the 13th at the Charing Cross Hotel; present, Messrs. H. R. Dugmore (Chairman), T. C. Burnell, S. Lucas, Rev. J. D. Peake, and O. E. Cresswell (Hon. Sec.)

A dispute between Mr. J. Turner and Mr. J. W. Ludlow concerning a private sale of a Cochin hen at the last Crystal Palace Show had been submitted to the Club, both binding themselves to abide by the Club's decision. An elaborate summary of the case was drawn up by Mr. Dugmore, and submitted beforehand to both parties interested, to aid the Committee in considering it. The following decision was given:—"The Committee of the Poultry Club decide, that taking into consideration Rule 3 of the Crystal Palace schedule according to which 'sales can be effected only through the Secretary,' it cannot recognise as valid a sale effected in any other way during the show. The Committee therefore decide that Mr. Ludlow's claim cannot be maintained."

The question of a new standard of excellence for the judging of some breeds of poultry was then discussed at the request of Mr. T. W. Anns and other members of the Club. The subject being a very wide one, and interesting to many fanciers not members of the Club, it was decided to reserve it for discussion at the General Meeting of the Club to be held at the time of the Crystal Palace Show.

The Honorary Secretary reported that he had received no answer to letters addressed to the Secretary of the late Kingston Show, from whom he had asked an explanation as to the deductions of an entry fee from the prize money of Mr. P. Haines, who had a receipt for his prepayment of the fee.

Much other business was transacted by the Committee, and the

Honorary Secretary announced that he felt himself obliged to resign his office at the end of the year. Lest there should be any misconception, he wished it to be understood that his sole reason for this step was that he now found the work of the Club beyond his powers. He took this early opportunity of announcing this intention, to give the Club plenty of time to consider whether any change in the office of Secretary for the future might be desirable.

GREEN FOOD FOR FOWLS.

IN good grass runs where the turf has been prepared from properly selected grasses and herb seeds, it is seldom necessary, unless in very hot weather, to supply fowls with any other green food besides what they are able to pick up there; but all fowls in confinement, or in such runs as afford little or no supply of green food, should have it given to them in abundance at the present time, and less or more throughout the whole year, but more particularly when moulting and in hot weather. Some fowls are very fond of green food of any description, and others will hardly eat it in any form. It depends very much on how they have been brought up. Chickens reared and allowed to run at large for a considerable time in a field, are frequently a long time before they will even deign to look at green food when thrown in to them in a confined run, and they have sometimes held out so long in this way that we have been obliged to chop up refuse vegetables small and mix them with the meal. This plan of giving green food is a very good one, and may be practised with all fowls and under all circumstances. Chickens, however, which have been reared in confinement and under mothers which were fond of picking at anything green, seem to take to green food naturally, and with such there is no trouble, as they will eat freely of what is placed before them. When green food is scarce, less is used when it is chopped up and mixed with the other food than when thrown down in the rough.

Another good way is to suspend it with a piece of cord about a foot from the ground, or just high enough for the fowls to reach it. They pick at this in a very cheerful way, and besides adding so much to their health, it affords them both amusement and exercise. No day should pass without fowls having some green food or other, and when they can supply themselves it is astonishing what a quantity they will sometimes eat. At certain seasons we have seen some of our birds prefer green food to all other, and they appear to live on little else. When green food is withheld from fowls the feathers frequently assume a dry withered appearance, which may relapse into something worse, and they seem to be particularly fond of eating each other's feathers, and this in the case of show fowls is a great evil, especially with crested birds, such as Sultans, Polands, Houdans, &c., as a ragged top-knot is a serious disfigurement.

In summer there are few instances where abundance of green food cannot be had of some sort or other, such as Cabbage, Cauliflower, Turnips, Beet, Lettuce, young Onions, and other crops which may be going to waste. But where green food is grown purposely for the fowls we would only grow Lettuce and Endive. These they eat most greedily, and they thrive better on them than anything we have tried, and we have tried all kinds of green food. The Endive we prefer most of the two, and so do the fowls, as it is very cooling and, being so bitter, is a fine tonic. Supposing any fowl not to be taking its food freely, if the leaves of the Endive are chopped-up and mixed with the other food, the difference in its appetite will soon be apparent. Plenty of green food acts more as a preventive and cure of disease amongst fowls than nine-tenths of the articles which are sent out as medicine. In winter or during severe weather it is often a difficult matter with many to secure a supply of green food, and then variety must not be much thought about. Cabbage, Brussels Sprouts, or Savoy leaves will do, and failing such as these, Turnip and Mangold Wurtzel roots are much better than nothing. Potato parings may also be included in the same category, and they are plentiful enough all the year round in most places.—J. MUIR.

VARIETIES.

THE monthly Committee meeting of the British Bee-keepers' Association was held at 105, Jermyn Street, on Wednesday, August 18th. The accounts were presented and past. It was arranged that the "Handbook for Cottagers" should be supplied in quantity at a reduction. One hundred 40s., 250 or upwards 35s. per hundred. The diagrams 5s. per set to those taking not less than five sets. The other business was principally of a routine character.

— AGRICULTURAL RETURNS.—According to the report for the

current year issued by the Board of Trade we find that the extent of land under Wheat is 2,909,148 acres, Barley 2,467,831, Oats 2,796,905, Potatoes 550,931, and Hops 66,737. Compared with the return for 1879 these statistics show an increase in the acreage of land under Wheat to the extent of 18,904 acres, Oats 14,287, and Potatoes 9587; and a decrease in the case of Barley of 199,345 acres, and in Hops of 934 acres. The total number of live stock is stated as—cattle 5,912,046, sheep 17,187,816, lambs 9,433,908, and pigs 2,000,722, showing a decrease in sheep and lambs of 1,535,357, pigs 90,837, and an increase of 55,690 cattle.

— WE have received the July number of the "Canadian Poultry Review," published at Strathroy, Ontario. The Pigeon fancy seems to progress in Canada, indeed in the said number an article by "C." on Fantails is copied *in extenso* from our columns.

— WE are requested to announce that one of the treasurerships of the Poultry Club having become vacant, Mr. A. Darby has been nominated for the office by Mr. O. E. Creswell and seconded by Mr. T. C. Burnell. Members of the Club who wish to nominate any candidate for the office are requested at once to send their nominations to the Hon. Sec.

— WE have before us the schedule of the Birkenhead Poultry Show, to be held on Sept. 8th and 9th. There are thirty-one classes for poultry and seventeen for Pigeons, with good prizes and moderate entry fees. The Staffordshire Society will this year hold its Show at Stoke-on-Trent on September 22nd and 23rd. The schedule seems much the same as in former years.

— HARVEST PROGRESS.—The highly favourable weather that has prevailed during the past fortnight has been of incalculable benefit in expediting harvest operations. In the south many fields are cleared, and the grain in not a few instances is so hard and dry as to be in good condition for grinding. In the midlands cutting is general, but the crops are so flattened and twisted that as a rule one-third more time is occupied in reaping than if the machines could work in the usual manner. Cutting has also commenced in the north, and three weeks of similarly fine weather as we have recently enjoyed would enable the bulk of the English harvest to be secured. The barometer, however, is now falling with a much-clouded sky, and rain may possibly follow before the end of the week; if it does it is much to be hoped it will only be in the form of a passing shower. Harvest work, says the *Farmers' Gazette*, is now going on in Ireland, and prospects are very much improved. The stalks of the Potato crop are beginning to show symptoms of decay, but there does not appear to be disease to any serious extent. The extraordinary luxuriance of the Champion Potato has been everywhere remarked. The hay crop is not heavy, at the same time the very moderate prices at which it can be purchased show that a scarcity is not anticipated.

— MESSRS. READ AND PELL'S REPORT ON AMERICAN FARMING.—Although this report is not yet issued to the public, a few copies have been supplied to the members of the Commission. The report consists of sixteen pages, and a number of statistics and facts which support or explain the conclusions Mr. Clare S. Read and Mr. Albert Pell, M.P., have formed are given in an appendix. With regard to the importations of live stock, the report states that whenever America can show a clean bill of health, and live imports are again introduced, a considerable trade in store stock will probably be developed. The largest portion of the report deals with the subject of Wheat cultivation. The Commissioners, on this subject, state that the yield of Wheat over a long series of years in the States appears to have just exceeded twelve bushels per acre. For the year 1879 the return of the yield is 18.1 bushels per acre. With a yield of twelve bushels the Western farmer could deliver from his waggon at the depôt without loss at the 3s. 6d. a bushel. In all parts of the report is noticed the aptitude and readiness throughout the United States with which the best machinery is obtained by the farmer, and it is pointed out that good machinery and improved implements are much more common on American than on English farms. The tools are lighter, better shaped and better made. "It may be true," we are told, "that a good workman never finds fault with his tools," but it

is truer still that a Yankee labourer is too sensible ever to work with a bad one.

— THE FUTURE OF AGRICULTURE.—Professor Wrightson made the following remarks on this subject in a recent lecture:—The true future of farming points in the direction of an enlightened tenantry exercising their vocation with freedom. We have a good climate and a grateful soil, but who ever commanded us to employ it solely in the cultivation of about half a dozen crops? We must gradually break through this tradition, and be ready to grow crops which will continue to be profitable. Farming will tend to approximate towards market gardening, and the rage for large farms will be found to diminish as a larger capital is found necessary to stock an acre of land. The tendency may be gradual, but it nevertheless exists, and we must be ready to accommodate ourselves to the necessities of inevitable changes. We must consider closely the directions in which we are likely to meet with the most severe competition. Wheat, and corn in general, is not likely to fetch high prices any more. Beef is likely to keep to a lower range than heretofore, and mutton will to some extent sympathise with beef. Milk, poultry, green fodder, Turnips, and soft fruits are, on the other hand, likely to maintain their value, because of their bulk and weight in proportion to their value.

THIRD ANNUAL SHOW OF THE HERTFORDSHIRE BEE-KEEPERS' ASSOCIATION.

At the annual Meeting of the above Association, held a few months since, the Rev. Herbert R. Peel suggested that in connection with the Show, which had at that time been arranged to be held at St. Albans, there might take place an exhibition of flowers, fruits, and vegetables. The encouraging result of this suggestion will be found chronicled in another column, here we have to do with bees and their surroundings. One of the highest feats of generalship is to create an army, and in this the worthy Secretary seems to have been successful, since the member roll of the Herts Association is stronger than that of any county association in the kingdom, and, as might have been expected, the Show was an admirable one, the collection of honey especially being, quality and quantity considered, equal to if not better than any we have yet seen. The Judges in the open classes were the Rev. Canon Kewley, Baldock, and the Rev. F. J. Wilcox, Frithsden; and of the county classes, T. W. Cowan, Esq., Horsham, and the Rev. J. S. Sisson, Edington Rectory, North Walsham. The hive classes call for no special remark after the digest of the exhibits at South Kensington.

For the best exhibition of comb honey in sections, each not more than 2 lbs. in weight, packed in the most attractive and portable form for sale. Although this class was confined to the county the display was splendid. Mr. S. Thorne took first with fifty-three large sections of his well-known quality. We hear that of the immense bulk of honey he had at South Kensington only one section remained unsold at the close of the Exhibition, so that these sections and those of his to which we come presently are another brewing altogether. This is all done with fifteen hives, and speaks well for the district, the bee-keeper, and the profits of bee-keeping. Mr. E. Bacon made a good second, and Mr. Frederick Smith third; Mr. Gulston being highly commended with twenty-seven large sections carefully decorated. No bad exhibit appeared. For the best five sections of comb honey, each weighing not more than 2 lbs. Here quality was the test, and here it was found. The sections were really artistic, flat, and faultless as slabs of alabaster. Mr. Thorne took first, the Rev. Herbert Peel second, Miss Gayton third, and Dr. Smith commended. For the best exhibition of honey in supers of any other kind than section boxes, Rev. — Jenkyns first and Rev. E. Bartrum second with three fine Stewartons; Col. Smyth took both third and fourth places. For the best exhibition of pure extracted honey in small glass jars, not to exceed 2 lbs. each, each entry to consist of not less than five jars, the competitors were sixteen in number, and the quality of the honey in many cases superb. Of the winning lots it is hardly possible to speak too highly. Clear as crystal, good in body, delicate on the palate, nothing seems to be left for improvement. The first and second quite correctly fell to Dr. Smith and Miss Gayton, and were, we understand, extracted from combs of the swarms of the year, and in which brood had not been raised; no breakdown, however, occurred. Comb honey, to be exhibited by *bona fide* cottagers. Here quality was not equal to that of which we have already spoken, but yet great advances have been clearly made. No first prize was awarded; second T. Hudson, Croxley Green.

The beeswax was shown in plain slabs. First Miss Gayton, second Mr. Thorne, third Mr. Clapp. The Rev. H. R. Peel offered a special prize for an exhibition of flowers suitable for the pasturage of bees, which fell to Mr. Gibbs of St. Albans. In the open classes for honey Mr. S. Thorne once more successfully battled against all comers. Mr. Walton's extractor received second, no first being awarded, on the ground, we understand, that as the cage is partly wood it renders the

honey sour. We had thought honey could only be rendered sour by fermentation. Perhaps someone possessing honey made sour by extraction will give us a little information.

The driving competition and subsequent manipulation were as usual sources of much attraction, and no doubt edification also in matters apicultural. In conclusion, it is clear that we may now regard as a thing of the past that dirty material contaminated with pollen and fouled by the juices of bee grubs, perhaps some days dead, and flavoured with sulphurous acid, which, as the latter is antiseptic, had for this mixture its advantages. Even this we once called honey, but now the word means an article of diet delicate in flavour, pleasing to the eye, sustaining to the system, and having about it no suspicion of any sophistication which could turn the most delicate or fastidious.

COMB FOUNDATION.

YOUR correspondent, Mr. George Procter, in his last communication on page 177 uses my name in a connection which I think he would hardly upon reflection regard as justified. He says, "Now Mr. Cheshire and Mr. Raitt can answer for themselves why they have endeavoured to strengthen foundation, but it strikes me that the public craving for novelties on one hand and the desire on the other for some material so prepared as to defy careless handling may have some part in the matter." If Mr. Procter thinks that a desire to satisfy a public craving for novelty has been the object sought in the devotion of very much time and the spending of a good deal of money in solving problems in connection with apiculture during several years, I can assure him he is totally mistaken. But for this remark I should not again have alluded to the sagging of foundation. Having solved the problem and communicated the method, my public work in relation to it is ended.

Mr. Procter's first letter a little puzzled me, but his second has brought its solution. He will, I hope, pardon my saying that a veil of such density as to allow brood to be mistaken for honey would account for much. I assert, without fear of contradiction, that machine-made foundation invariably stretches so little indeed in some cases that practically it is perfect, but so much in others as to spoil it utterly. I have a piece of Mr. Raitt's foundation now, 3 inches of which has stretched to very nearly 4 inches. Everybody of experience knows that if one side of a sheet be worked out before the other is attacked, that the corners if left to themselves retreat from the worked side, because that side, and that side only, has increased in size. Mr. Root, upon whose machine Mr. Raitt's foundation is made, surely knows somewhat of this question, and in the last month of "Gleanings" he speaks thus in referring to my wires:—"Mr. Cheshire, your experiments are most valuable, and the united world of bee-keepers owes you its thanks." Nothing can more surely damage the reputation of an article than claiming for it more than its fair due. Mr. Raitt's foundation is most excellent in quality, but in swarms in warm weather it will stretch, and often be utterly spoiled if used in full sheets unless assisted. The thicker the foundation is made the better it will stand, but this means waste if sagging can be prevented by other means less costly than a double allowance of wax. The thinner we can use foundation the better, because the more economical if we can get perfect combs, and at the same time save the bees almost entirely for wax secretion. But my wires have other advantages than those I have hitherto claimed for them. They fix the comb very quickly, secure perfect straightness, and prevent drooping; but in addition—as Mr. Cowan has pointed out to me, for it did not occur to me before his suggestion—they permit the use of thin foundation in hives and the joining together of pieces to make up a sheet, and this advantage lies happily altogether outside the contention of Mr. Procter's letter. His method of fixing his sheets I regard as unnecessarily troublesome, and quite out of the question in a large apiary. His reference to "boiling wax" for fixing is undoubtedly an oversight. Boiling wax is necessarily carbonised, and bees will not touch it, besides which it would simply melt instead of fixing the foundation. Wax at the temperature of boiling water must be meant, and this is essential; using wax only a little over its melting point, 150°, is generally the cause of breaks down, about which, as Mr. Procter rightly supposes, I know nothing experimentally. Mr. Hooker's method is much less trouble and quite as safe as the one Mr. Procter gives. He simply provides a saw-cut through the top bar; he springs the cut open with a large nail, holds it open with a simple tool somewhat like a big bell-hanging clip, withdraws his nail, and inserts the edge of the sheet. The removal of the tool grips the wax by the elasticity of the wood, and the thing is done. Wax may be run in if thought necessary. I simply use a board fitting loosely inside the frame, and of such a thickness as to hold the sheet in the correct position. On the back of this board are two stiffening strips extending beyond its edges, and

upon these the side of the top and bottom bars rest when it is in use. The sheet is laid on the board, which is held in the hand while the smelter runs in wax between its top edge and the top bar. I argue that it is an error to wax on both sides. On the other side the sheet is perfect to its very limit, and the bees build out the cells at once. Wax on both sides is often the cause of the comb being left unfinished at the top bar and afterwards perhaps dropping, though I believe this never happens unless rough handling has favoured the misfortune.

A new method of making foundation is springing up, which will bring a competitor to machine-made foundation into the market. I believe I may lay claim to being the introducer of wet plaster of Paris as a substance upon which molten wax could be formed in sheet. It is singular that this new apparatus is in form exactly like three or four made some years back, but with which I practically failed because I did not use my machine in the best manner. It is contrived thus: Two frames of wood, like slate frames somewhat, are hinged together. A sheet of foundation stands between them when they are shut, while upon each side of the foundation with due precaution plaster is filled into the frames. When this is fully set the frames are opened and the sheet removed. I operated thus: With a paint brush melted wax was coated on to one of the slabs of wet plaster and then the frames were shut together, but the wax set too quickly for me to get a good impression on the upper side. Our American cousins, however, have succeeded. They dip one frame while it is held in a horizontal position into melted wax, and then sharply shut the two together; and foundation having capital finish and an unpolished surface, so that it is very quickly worked out in the hive, is in a moment produced. Mr. Abbott, jun., showed me some he had made thus a few days since, and it seemed to be all that could be desired.—F. R. CHESHIRE.

BEES ON DARTMOOR.

I HAVE just returned home after a month's absence on the high grounds of Dartmoor, close to the border land where cultivation merges into the waste—the very *beau idéal* home of the bee. But I am sorry to say that among miles of Bell Heather and Ling in full blossom, across which we tramped day after day in the most perfect weather, neither ear nor eye were gladdened by the sight or sound of a single honey bee. Here and there we came across a hive or two where there ought to have been hundreds. The general cry was they had perished pretty nearly out of the land. The white Clover was still in full bloom on the 20th, and may have been preferred as yet to the Ling by those bees which have survived the winter, but still one expects to see the latter covered with bees by this time.

An old woman who had managed to save two stocks described in triumph what she thought was the secret of her success. For the two last severe winters she had simply plastered up every crevice, entrance and all, and not allowed a single bee to move abroad from just before Christmas to the end of March. She gave as the reason which induced her to try this mode of wintering that she found so many bees die in the snow, and blown away never to return by the cold winds of the early spring, that she resolved they should not budge at all. She said they were very weak but in good health when she liberated them, and although one of the hives had barely a teacupful of bees, by dint of feeding she had to encourage them, that they had swarmed twice each stock.

As to the march of improvement in bee-keeping there were no signs of such a thing. Small hives, which appeared smaller than usual were alone to be seen, and all the ancient slovenliness of bygone generations.—B. & W.

OUR LETTER BOX.

Ducks where Water is Deficient (Mary).—Rouen Ducks are, we believe, the best to suit you. Aylesburys are preferable if you have hens under which to put the eggs, as they are non-sitters, as they lay very many eggs, and fatten easily. Rouen and Aylesbury are the desirable breeds on account of their size.

Chickens Drooping (B. C. D.).—Remove your chickens to fresh ground, provide them with heaps of dust or road grit, and mix a little black sulphur with it. Feed them for a short time on stimulating food till they get over their troublesome time. Growing the crown and tail feathers are the "children's diseases" of chickens.

Feeding Chickens (Tyro).—For the first fortnight chickens are best kept upon alternate feedings of Indian meal, bread crumbs, and eggs boiled hard, chopped fine, and mixed with a little crushed hempseed. The Indian meal should be only so far moistened as still to remain crumbly. After the first fortnight, and until large enough to feed with the older fowls, give them daily in addition, a feed or two of either bruised Wheat or bruised grits. From the very first days of their life continue, without fail, to give them daily fresh green food. Cabbage and Lettuce leaves, and mowings of grass are best. Remember above all things that a little food given often—every two hours is not too frequently—is the chief rule for chicken-rearing.

Matching Game Bantams for Exhibition (B. T.).—A prize is awarded in Game Bantams, as with any other fowls, to the most meritorious pen. Matching is essential, and it would of course be sought by an exhibitor; but the fact of all three birds having a doubtful merit, or a positive defect, would not be lessened in its consequences by their all having it. We prefer a red earlobe in a Game fowl.

Tame Doves (A. R.).—The number of times that tame Doves breed in the year entirely depends on the way in which they are kept. If they live a tolerably natural life—i.e. if they are kept in an aviary in the open air, in which they do best, with of course proper protection from wet and cold winds, they will probably go to nest in March and continue to breed till the end of August, rearing about four pairs. If, however, they are kept in a cage in warm rooms they will continue laying all the year round with the exception of a short intermission during the moult. They will, however, probably rear fewer young in this way, as many will die, and some eggs prove infertile. Their food should be maize, wheat, and millet.

Books on Bees (New Subscriber).—Our mammal, "Bee-keeping for the Many," published at this office, price 4d., post free 4½d., contains useful instruction and concise information for young apiarists. Larger and good works are "Neighbours' Apiary," 5s., published by Kent & Co.; Cheshire's "Practical Bee-keeper," 2s. 6d., 170, Strand; and Pettigrew's "Handy Book on Bees," 3s. 6d., Blackwood & Sons. These works give sound information on the various modes of bee-keeping.

Langstroth Hives (A Ten-years Subscriber).—We do not possess Langstroth's hive, but believe the principle is the same as in the case of all other bar-framed hives. You cannot have a better hive than Mr. Cheshire's. By Italian bar hives we presume you mean hives for Italian bees. These bees are not imported into this country in Italian hives. Perhaps some of our correspondents who know Langstroth's hive by experience will kindly say if it is in principle different from our English bar-framed hives, and if they know anything of Italian bar hives.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1880.	Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
August.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun. 15	30.088	63.1	60.6	N.E.	64.4	70.7	58.6	114.4	59.2	—	
Mon. 16	30.086	59.5	57.7	N.E.	63.7	68.7	56.7	85.0	57.4	—	
Tues. 17	30.101	65.4	61.6	N.E.	63.3	77.7	58.4	128.6	57.3	—	
Wed. 18	30.135	62.3	57.6	N.E.	63.8	71.0	57.6	108.4	58.0	—	
Thurs. 19	30.058	60.5	58.9	N.E.	63.6	77.7	57.4	126.6	57.5	—	
Friday 20	30.041	63.4	61.2	N.E.	64.2	73.4	60.4	120.4	60.7	—	
Satnr. 21	30.106	64.7	60.3	N.E.	63.9	79.4	58.6	127.3	56.1	—	
Means.	30.088	62.7	59.7		63.8	74.1	58.2	115.8	58.0	—	

REMARKS.

15th.—Cloudy and rather dull all day, with the exception of a little sunshine about 3 P.M.
 16th.—Cloudy and cool; not a glimpse of sunshine all day.
 17th.—Cloudy till about 11 A.M.; afterwards fine and bright.
 18th.—Dull cloudy day, with a few glimpses of sunshine at long intervals.
 19th.—Dull and cloudy till about 10.30 A.M.; remainder of day fine, bright, and pleasant.
 20th.—On the whole rather dull and cloudy, though there was a good deal of sunshine in afternoon.
 21st.—Rather cloudy early; fine and bright after 10 A.M.
 A fine week, but with a good deal of cloud and persistent N.E. winds. Temperature lower than that of the preceding week.—G. J. SYMONS.

COVENT GARDEN MARKET.—AUGUST 25.

THERE is still a large supply of Grapes arriving from the Channel Islands, but that of home-grown fruit is very limited. Large quantities of Plums have arrived within the last few days, realising moderate prices.

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples.....	½ sieve	2	6 to 4	6	Melons	each	2 0 to 4 0
Apricots.....	box	1	0	2 6	Nectarines.....	dozen	2 0 8 0
Cherries.....	½ lb.	0	0	0 0	Oranges	½ 100	4 0 12 0
Chestnuts.....	bushel	12	0	16 0	Peaches	dozen	3 0 10 0
Figs.....	dozen	2	0	4 0	Pears, kitchen ..	dozen	0 0 0 0
Filberts.....	½ lb.	0	8	1 0	dessert	dozen	2 0 3 0
Cobs.....	½ lb.	0	0	1 0	Pine Apples	½ lb	1 0 2 0
Gooseberries ...	½ sieve	2	6	4 0	Plums	½ sieve	1 6 3 0
Grapes	½ lb	0	9	3 0	Walnuts	bushel	0 0 0 0
Lemons.....	½ 100	6	0	10 0	ditto	½ 100	0 0 0 0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	to 4	0	Mushrooms	dozen	1	0	to 1	6
Asparagus.....	bundle	0	0	0	0	Mustard & Cress ..	punnet	0	2	0	3
Beans, Kidney....	¾ lb.	0	0	0	6	Onions	bushel	3	6	5	0
Beet, Red.....	dozen	1	0	2	0	pickling	quart	0	0	0	9
Broccoli.....	bundle	0	9	1	6	Parsley..... doz.	bunches	6	0	0	0
Brussels Sprouts..	½ sieve	0	0	0	0	Parsnips	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Peas	quart	0	9	1	0
Carrots.....	bunch	0	4	0	6	Potatoes.....	bushel	3	9	4	0
Capsicums.....	¾ 100	1	6	2	0	Kidney.....	bushel	4	0	0	0
Cauliflowers.....	dozen	0	0	3	6	Radishes.... doz.	bunches	1	6	2	6
Celery.....	bundle	1	6	2	0	Rhubarb.....	bundle	0	4	0	0
Coleworts..... doz.	bunches	2	0	4	0	Salsify.....	bundle	1	0	0	0
Cucumbers.....	each	0	4	0	6	Scorzonera	bundle	1	6	0	0
Endive.....	dozen	1	0	2	0	Seakale	basket	0	0	0	0
Fennel.....	bunch	0	3	0	0	Shallots	¾ lb.	0	3	0	0
Garlic.....	¾ lb.	0	6	0	0	Spinach	bushel	3	0	0	0
Herbs.....	bunch	0	2	0	0	Turnips.....	bunch	0	4	0	0
Leeks.....	bunch	0	0	4	0	Vegetable Marrows	each	0	2	0	0



2nd	TH	Harpden Horticultural Show.
3rd	F	
4th	S	
5th	SUN	15TH SUNDAY AFTER TRINITY.
6th	M	
7th	TU	Alexandra Palace Fruit Show closes.
8th	W	Wirral and Birkenhead Agricultural Show.

MORE ABOUT POTATOES.

I SHOULD apologise, Messrs. Editors, for asking you to allow me to have my say also on the above subject did I not know that everyone who has the means of growing a few Potatoes has a lurking fondness for a chat about that most seductive and interesting vegetable. Few there are who have not some pet theory of their own about its culture, or some nostrum which ensures an abundant crop and freedom from disease. Almost every cottager one meets will, if you give him the chance, propound some deep theory about "taties," and give you his "pinion" as to the cause of the disease and his way of defeating the enemy.

One of the mysteries connected with this cherished tuber is the power it has of affecting everyone who talks about it with the idea that he knows more about its ways and doings than any other living being. Do I not now begin to feel its subtle power working in me? For whereas I started with the thought, that although I had been a student in the Potato school for many years, my education was as far from complete as ever; now I begin to fancy that I do know something after all. At all events I think I have proved the fallacy of many professedly infallible rules laid down from time to time by the would-be instructors in the art of Potato growing.

A few weeks since I saw it propounded in this Journal by "W. B. W.," that the way to obtain good crops and to avoid the disease is to select for seed the largest and best-shaped tubers only. I beg to submit that this is fallacy No. 1.

Some years ago I was in the habit of regularly exhibiting Potatoes, and had the gratification of winning many first prizes at various shows. Thinking to continue my successes with more certainty and greater ease, I used at first to keep all my prize Potatoes for seed, adding to their number any others that I was able to select from my stock of equal size and merit. These were planted with extra care at double the usual distance, and I expected grand results. I can only say that in every case I was disappointed. The produce was generally inferior to that obtained from my medium-sized seed, and quite as liable to disease. The supposition that the largest Potatoes have eyes of a better constitution than smaller tubers is, I believe, also a fallacy. No one who has grown Potatoes long can have failed to observe, that in years when disease is rife it is nearly always the largest tubers that are first affected. Last year, an unusually bad one, I dug about half an acre of Snowflake in which every large Potato was diseased. Only a

small proportion of the crop, and that consisting entirely of small and middle-sized Potatoes, escaped. Many a time I have had the rows overhauled to obtain exhibition specimens, and in bad seasons have been disgusted at finding all the finest touched with the abominable disease. My deduction, therefore, is quite the reverse of that of "W. B. W." I find that size and weakness of constitution as a rule go together, and my advice is, Send your large Potatoes to market or eat them. Do not waste valuable food by putting it into the ground to rot, when you will get equally good if not better crops by planting sound, whole, or even cut sets of medium-sized Potatoes.

Then, again, I see it constantly insisted upon as necessary to success "Change your seed;" "Get it from a distance if possible, and you will be repaid by double crops with greater immunity from disease." Now as far as my experience goes this is a mistaken notion. My advice is, If you have the chance save your own seed, and you will save your money too, and get a better crop into the bargain. "But this is rank heresy," some will say. Well, it may be so; but I can only add that for the last fifteen years I have purchased a quantity of seed, but never yet bought any as well saved as I can save it myself, nor any that gave me a better return in the way of a crop. I have now some Gloucestershire Kidneys (one of the very best earlies), which have been grown in and saved from the same ground for the last fourteen years, and their produce is this season quite equal to what it was originally; nor is there any more tendency to disease than there was at first. In fact, in the worst seasons I have usually had them quite free from it.

But when I say "Save your own seed," I mean "save it well." Let medium-sized tubers be carefully selected; let them be carefully spread out in single layers, and the original sprouts carefully preserved. And does all this ward off disease? No, by no means, but without doubt it mitigates its severity, and, above all, gives the crop a chance of being ripe and out of the ground before the pest appears. My experience coincides with that of Mr. Edward Luckhurst when he says that in the matter of disease we are at the mercy of the weather. It is simply a question of a wet or dry season.

Like many others I have gone in largely for Scotch Champions this season. I regret to say that my experience leads me to write myself among the fools for so doing. Not that I do not intend to try them again, for it is never fair to judge of anything finally from one season's trial. But at present I have several faults to find with them. First, they do not resist the disease as I was led to believe. On the contrary, my Champions were the first affected by it, and from them it spread to Snowflake in the same field. The disease is not of a bad type; but still the point is, that they have broken down in what was said to be their great forte. On lifting there were more diseased tubers than under most of the other varieties grown here. Secondly, the haulm is too long. I think it a great mistake to grow Potatoes with such immense stalks as Champion and Magnum Bonum have, if it is possible to get a crop from any others. We cannot eat Potato stalks. But the stalks can and do scourge the ground most unmercifully, and eat out a quantity of material out of all proportion to the useful part of the crop; besides, they take up so much room. Thirdly, they produce a perfect wig of fibrous roots; these added to the immense stalks make them hard to lift. Here they had to be cut off with a sickle like corn before the roots could be got at, and

when found they took a deal of digging. Fourthly, the crop is nothing wonderful considering the haulm. The tubers are ugly, hollow-eyed, and boil yellow. However, I do not so much mind the colour, and consider them superior in quality to *Magnum Bonum*. It is possible that when the seed has been home-saved they will do better. My man says (and I am quite sure that he thinks he knows much more than I do about Potatoes) they must have poor soil and no dressing, and then they will produce enormous crops. I hope this may be so, but am on the look-out for more fallacies.

Now, I think, for the present you will say that this is enough. Perhaps on some future occasion you will allow me again to keep the Potato pot a-boiling.—R. W. BEACHEY.

GLEANINGS AMONGST ROSES.

THERE has been no Rose harvest proper this season so far as I have heard and seen. Devastated, and in many instances totally destroyed, by the severity of the last two winters and springs, the ravages of the frosts and east winds have naturally been more apparent this season than last summer. The numbers of gaps, empty corners, and spaces everywhere, together with the weaklings that have been given another chance of bloom, make a mournful contrast to the memories of other years, when one could gather basketfuls rejoicing for home use or for some beneficent purpose where beauty and fragrance are so prized.

Up to August 1st, when the hot bright weather set in, it was difficult to cut any good Rose blooms. I never remember them in worse condition. Even the dark Roses, which usually resist wet, did very badly, and spotted and mildewed almost as extensively as the higher varieties. Almost all the dwarfs of the standard exhibition varieties which were put in last autumn did well—one only died. *Marie Baumann* bloomed grandly and profusely; and I note this the more particularly, that at the time of planting one plant of this Rose was so much mildewed—apparently quite withered, that we thought it dead. It has done the best in point of size and healthfulness. All these dwarfs were late in flowering. *Madame Emma* All does not show a bud yet. *Capitaine Christy*, *Madame Marie Finger*, *Marie Louise Pernet*, the latter a rich Rose of noble carriage and exquisite scent, gave large and perfect blooms. *Princess Beatrice*, an old plant, was very fine; another put-in in autumn died. *Horace Vernet*, *Fisher Holmes*, *Miller Hayes*, *Madame Victor Verdier*, &c., succeeded well.

It was amongst the old and autumn-planted standards that the havoc was greatest. *Mabel Morrison*, *Eugénie Verdier*, *Comtesse de Serenye*, *Louis Van Houtte*, *Lord Beaconsfield*, *Comtesse de Paris*, *Duc de Montpensier*, *La France*, *Duke of Edinburgh*, *Mons. E. Y. Teas*, and many more have left empty spaces or are replaced by *Stoeks*, *Petunias*, or other temporary bedding plants. *Dupuy Jamain*, *Marguerite de Brassac*, *Abel Carrière*, and one or two others, including *Etienne Levet*, this last dwarf, are only now coming into bloom. Taking the standards old and new there are very few perfect heads to be found. Some, of course, are out and out vigorous and promising, but many are weakly and scraggy, and must be removed when blooming is over. *Beauty of Waltham* is certainly one of the hardiest, earliest, freest, and latest; very sweet, and a rich deep cherry red.

Amongst the newer varieties of dark Roses *Sultan of Zanzibar* deserves mention. A young standard put in the year before last and cut closely in this spring has done remarkably well, and I should think would be valuable as a climber. It is very free, and its dusky foliage is rich and handsome. I have just measured two shoots from the base of the budded part that broke late, and have in a few weeks made, one a growth of 68 inches, the other 60 inches. The dwarf *Sultans* are not remarkable for growth, but some other dwarfs, where they have successfully struggled against adverse influences, have made very strong growths. The general result seems to be that the Rose season has been late, irregular, and scanty, but it will probably be prolonged as some compensation.

As to weather, August brought us fourteen days of unclouded sunshine and high temperature. This was followed by a week of north-east wind and hardly any sunshine, both together most favourable for harvest operations and most beneficial to gardens. Yesterday, the 25th, the clouds gathered, the wind changed, and at 7.30 A.M. this morning we had a very high temperature, distant thunder, and deluges of rain. Soon after noon it began to clear; the sun has shone out, but it looks still unsettled. Nevertheless, untold good and goodness have resulted from the propitious weather of the last three weeks.—A. M. B., *Mid-Lincoln*.

CATTLEYA CRISPA.—Mr. Lane's note (page 140) on my plant of this *Cattleya* referred only to the number of blooms on the

plant when he saw it. Before this some had decayed and others been cut. I do not know the total number of flowers this year, but last year there were 132, and I think I must have had more this year, but the plant did not make so grand a show, as it has always previously expanded all its blooms at once instead of having an interval of nearly a month between its earliest and latest blooms, as this year. I may add that it is not now in my possession, as my hothouse was not large enough to accommodate it.—H. T. FRERE, *Burston Rectory*.

FRUIT CROPS.

So much have the effects of the late severe winters and the almost sunless summer of 1879 been felt by vegetation generally, and the fruit crops in particular, that we have had in the gardening periodicals almost unvarying reports of general scarcity. There is no doubt that this year's crops are, as was anticipated last autumn by several of your valued correspondents in the *Journal*, very far indeed below the average. The later and colder the situation the more this will naturally be observable. We might consequently expect in localities more favourably situated as to climate a corresponding, or at least a partial, immunity from this scarcity. I think it would be interesting to many of the readers of the *Journal* besides myself to know if this reasonable expectation is at all borne out by facts, and the effects of exceptional seasons alleviated by certain local circumstances which ought to be stated by correspondents, so that the cause and effect may be recognised, and, if possible, information drawn therefrom.

In mild winters the variation of temperature between north and south, or between districts with wet and those with dry subsoils, may be about the same as in a severe winter. In a mild winter, however, the difference is perhaps more noticeable, as we may have just sufficient frost to check any premature starting into activity of the buds of fruit trees in a cold situation, while in a warmer one, the temperature being above the freezing point, this premature starting is not checked, and is frequently the cause of loss of fruit by spring frosts; for unfortunately these are not confined entirely to cold and late districts, but are frequently as destructive in early localities. Of the ill effects of wet sunless summers, such as that of 1879, there can be but one opinion; but severe winters may, and under certain circumstances it is my opinion do, conduce to the advantage of the fruit crop.

After an experience of seven years on naturally well-drained land in Glamorganshire, I can testify that however much we have suffered in ornamental and other departments from the frost, the fruit crops have been most plentiful after severe winters, the fruit blossom being too early after mild winters. If the rainy summer of last year draws the attention of cultivators to the more effectual drainage of fruit borders combined with shallow planting, its experiences will not have been endured in vain. Only by heavy drainage—excessive I had almost said—can a crop of stone fruits be insured in the season succeeding a wet one. This drainage if thoroughly done may occasion much labour in watering during dry seasons, but where can we find unmixed good in any operation?

As bearing out the opinion expressed earlier in these notes that severe winters are in some cases in favour of the fruit crops rather than otherwise, and as illustrating the power of shallow soil and heavy drainage to reduce the ill effects of much rain and little sunshine, I may state that stone fruits, especially Peaches and Apricots, were very plentiful and fine in size with us last season, but the less said of flavour the better. Last autumn the wood of Peaches seemed unripe, although better than might have been expected, and the bloom proved thin on most trees, but still there is again a fair crop; indeed, trees of *Red Magdalen* and *Noblesse* are carrying heavy crops. Of *Nectarines*, a tree of *Brugnon* (an old variety too seldom seen considering its good qualities) is carrying a full crop, while others are more noticeable for the size of fruit than for quantity. Apricots are very plentiful, more being borne by the trees than is perhaps good for them in spite of repeated thinnings. Plums are just as numerous, especially the *Gages*, *Kirke's* and others of the finer dessert varieties; even trees of *Transparent Gage*, which I have always found succeed but poorly, are loaded with fruits. Cherries of the sweet section and *Morellos* are equally fruitful. Pears, however, have been almost a total failure with the exception of *Jargonelle*, which is the only variety carrying a crop, and those the wasps seem determined to have. How is it to be accounted for, that after such a season as the last, when scarcely a wasp was to be seen, we seem invariably to have a perfect plague of them? Over ninety nests have been destroyed by the garden men in our immediate neighbourhood, yet there seems no abatement, so that sweet traps and hexagon netting are in constant request. Small fruits have been plentiful, as are also Apples in gardens, but thin in orchards.

I find that the larvæ of the Apple Clearwing are again commencing their boring operations on Apricot branches this year, much in the same manner as noted by me in the Journal last autumn. Most of the branches then spoken of as attacked started into growth in the spring, then suddenly withered and died as only Apricot branches can go. In two cases branches died on which I had not observed their operations, but on cutting them out I found small holes from which the perfect insects had emerged; so in my case at least I am more convinced than ever that the points of attack and death of branch exactly coincide. But I am inclined to think it must be a different species from the one usually frequenting Apple and Pear trees, for although many of each are grown in the garden none have been attacked. I kept several of the grubs in pieces of the bark all winter for the purpose of more certain identification on the emergence of the perfect insect, but on examination this spring I unfortunately found them shrivelled and dead instead of changed into the pupa state.—R. CROSSLING.

DISA GRANDIFLORA FROM SEED.

AS some persons are desirous to learn my method of raising *Disa grandiflora* from seed, it is perhaps as well to reply to them through the columns of the Journal.

The seed should be sown as soon as it is ripe; but if that does not happen until late in autumn it would be safer to postpone the sowing until the following September or the last week of August. There are two modes of sowing the seed, each of which has its advocates. One of them consists in sowing on living sphagnum in a pot or pan. The moss must be kept always moist, and this may be effected by constant and very gentle dews, as the danger of a regular watering as ordinarily understood is that the seed would be washed down too deeply. The other plan is to sow on a sod of turf, as we call it in Ireland, or hard peat, as you would probably understand it—I mean the peat as prepared for fuel. Let it be well soaked in water. Sow the seed thickly on its upper surface. Cover all with a bellglass, and place it in a cool, damp, and shady place. The turf must never become dry, but the spraying of water must be of the gentlest description. A good plan for watering very fine seeds is to dip a stiff-haired brush in water, and to draw the hand briskly against it at such a distance as that only the finest dew reaches the seed.

When the seedlings appear they must have more air. When they can be handled they should be pricked off into small pans, or into pots not less than 4 inches in diameter. The compost for the seedlings for the first two years should be somewhat similar to that for mature plants, only that the peat should be considerably finer for an inch or two on the surface, and a much larger proportion of silver sand is necessary. The after treatment as regards ventilation, situation, and water is similar to that for established plants.

While I am on this subject I would warn persons whose stock is limited to a plant or two not to be too anxious for seed. One pod on a healthy plant is quite sufficient, as seeding retards the autumn growth and recovery after the labour of flowering.—FREDERICK TYMONS, *Clk., Co. Dublin.*

SANDY AND DISTRICT HORTICULTURAL SOCIETY.

THE strenuous exertions of an active Committee combined with the advantages of a suitable site (the picturesque park of John N. Foster, Esq., Sandy Place), in a central and convenient locality in the Bedfordshire market gardening district, have tended to render the Sandy Show not only the county Show of Bedfordshire, but one of the most important in the south-midland counties. The weather on Friday last proving all that could be desired for a flower and poultry show, the latter fancy being also strongly represented, an immense gathering more than sustained the usual prosperity of this Exhibition. Corresponding with this growth of popularity the quantity and quality of the exhibits have also increased, except perhaps as regards the large show plants.

In the open class for ten stove and greenhouse plants the competition has for several years been limited to one trade exhibitor, Mr. Parker of Rugby, who on this occasion was as usual first with some of his fine specimens, among which were noticeable *Bougainvillea glabra*, *Clerodendron Balfourianum*, *Allamanda Schottii*, *Stephanotis floribunda*, *Lapageria rosea*, and *Dipladenia insignis*. Lieut.-General Pearson (Mr. W. Rabbitt), The Hasells, Sandy, was second with a collection containing fine specimens of *Eucharis amazonica*, *Begonia Vesuvius*, and a remarkable unnamed *Azalea* bearing three different well-developed types of flowers. In the class for six stove and greenhouse plants open to amateurs J. H. Goodgams, Esq. (Mr. G. Redman), Eynesbury, Hunts, was first, and J. H. Astell, Esq. (Mr. G. Claydon), Woodbury Hall, Hunts, second. For twelve Zonal Pelargoniums in the open class, cleaner, better bloomed, and more even plants than those from General Pearson's have rarely

been shown, the finest and most distinct of the varieties being *De Lesseps* and *Lord Gifford*, both first-rate scarlets; *Dazzler*, brilliant vermilion with a clear white eye; *Rose of Allendale*, purplish rose (an excellent bedder also Mr. Rabbitt informs me); and *Madame Vaucher*, which he states after trying a great many of the newer varieties he still finds the best of all the whites. For six foliage plants in the gardeners' class Mr. Claydon was first, staging good plants of *Croton Weismanni* and *Cissus discolor*. For six stove and greenhouse Ferns in the same class Mr. Claydon was also first, his collection being crowned by a grand specimen of *Dicksonia antarctica*. Some remarkably well-coloured *Coleuses* were shown by Mr. Rabbitt, who was first in this class.

For dinner-table decorations Miss Pearson of The Hasells, Sandy, was first with a light and elegant arrangement containing a good deal of neutral colour, and Miss H. Astell of Woodbury Hall was second, making a very attractive and cheerful display. For hand bouquets Mr. E. Lewis of Huntingdon was first, and Col. Duncombe (Mr. R. Carter), Waresley Park, second. In cut flowers Dahlias were creditably staged by the Rev. E. L. Fellowes of Wimpole Rectory, Royston, who also had some excellent Asters; but perhaps the most attractive stands in this department (Roses excepted) were some remarkably fine African Marigolds. A stand of twelve orange-coloured flowers as large as ordinary Dahlias was set up by Mr. Swanie of Arlesey, who was first. Mr. D. Sewell of St. Neots had also in his stand six lemon-coloured blooms almost equally fine. The French Marigolds too were also numerous and well shown. Amongst the various cut flowers Zonal Pelargonium Henry Jacoby stood out as a very dark and distinct coloured variety. Roses, considering the moderate prizes offered, were remarkably good. Messrs. G. Paul & Son of Cheshunt and Mr. J. House of Peterborough, both showed very fine collections in the open class for forty-eight blooms; indeed so evenly balanced were both stands that it must have been difficult for the Judges to decide. Messrs. Paul was ultimately placed first and Mr. House second, the latter having several duplicates, as the schedule did not specify distinct kinds. The Rev. E. L. Fellowes was third with fresh and highly-coloured blooms. In Messrs. Pauls' stand the most noticeable were *Mdlle. V. Verdier*, splendid; *Marquis of Salisbury*, a handsome flower of the *Emilie Hausburg* type, but somewhat deeper in tone and otherwise distinct; *A. K. Williams*, confirmed as a good autumn Rose; *Duc de Wellington*, *Marie Baumann*, *Exposition de Brie*, a very fine flower; *Maréchal Niel*; *Capitaine Christy*, very good; *Star of Waltham*, *Duke of Teck*, *Le Havre*, *Souvenir de la Malmaison*, *William Roelle*, and *Mdlle. A. Lavallé*, both promising as new Roses. Mr. House had first-rate flowers of *Marie Baumann* and *Alfred Colomb*, two perfect blooms; *Xavier Olibo*, *Duc de Wellington*, *Duc de Rohan*, *Pierre Notting*, *Dr. Andry*, *A. K. Williams*, and *Mdlle. Jeannet Bowyer*, a broad-petalled cupped variety between *Comtesse d'Oxford* and *Victor Verdier*. Amongst Mr. House's "spares" was also a bloom of *William Allen Richardson*, which indicated that this new *Noisette* will become a popular variety for cutting, the colour being of the deepest orange-apricot, and both the petals and flowers having more substance and size than those of any other variety of the colour. Mr. D. Sewell of St. Neots had also a fine bloom of *Innocent Pirola* (Tea), and in Mr. Fellowes' stand was a good flower of *Amazone*.

In the fruit and vegetable tent an undoubted feature was the Grapes from Old Warden. In the class for two bunches of black, Joseph Shuttleworth, Esq. (Mr. Allis), Old Warden, exhibited magnificent fruit of *Gros Guillaume* of the richest colour and most beautiful finish; finer fruit of this variety and of *Buckland Sweetwater*, which Mr. Allis also staged, is seldom seen; he was first in both classes. Mr. T. W. Sheppard, Great Staughton, Hunts, who was second for black Grapes with good *Black Hambro'*, also showed a fine bunch of *Lady Downe's Seedling*, not for competition. For two bunches of white Grapes Mr. Redman was second. Bateman Brown, Esq. (Mr. Tillbrook), Houghton, Huntingdon, was first for a basket of fruit (Pines excluded) not to exceed 2 feet by 1 foot 4 inches, a limit of space evidently very unsatisfactory for the exhibition to advantage of a good collection of fruit. Transparent Gage Plums and early Julian Apples were also shown well, but with these exceptions the fruit was not remarkable.

Vegetables, as might be premised, were, on the contrary, of the first quality at Sandy; and although not of the *recherché* character nor set up on the gigantic scale as seen at Cheltenham, a larger and better display of ordinary vegetables is rarely met with at a provincial exhibition than here. For the collection of eight varieties *F. Howard*, Esq. (Mr. Geo. Robinson), Abbey Close, Bedford, was first; Mr. R. Facey, Goldington, Bedford, second; and H. Thornton, Esq. (Mr. G. Vyne), Kempston Grange, Bedford, was third, all showing very clean collections. For six varieties Mr. J. Armstrong, Goldington, was first, and Mr. J. Hills of the Bedford Sewage Works second. The best brace of Cucumbers, very even and without shoulder, came from Mr. Rabbitt, the variety being *Tender and True*. For a collection of Potatoes, six varieties, Mr. J. Richardson of Boston was first with *Rector of Woodstock*, *Baker Kidney*, *Beauty of Hebron*, *International*, *Myatt's Prolific*, and a handsome pink round variety. Mr. R. Facey was second, having fine tubers of *International*, *Magnum Bonum*, *Trophy*, *Pecrless*, *Manhattan* (round, dark purple splashed white). The varieties, however, which seemed to take the lead as winners throughout the Exhibition were *International* and *Magnum Bonum* as kidneys, and *Schoolmaster* and *Porter's Excelsior* as rounds.

Only slight signs of disease were apparent, and it is to be hoped that the recent dry weather has stayed its virulence. Celery was heavy and very good for the period. Onions were not so good as usual, many of the exhibits being soft and showing the effects of wet and mildew. Cauliflowers were rough, and not nearly so good as last year's exhibits. Peas, especially Omega and Telegraph, were well shown. In the cottagers' classes vegetables were quite equal to those shown by gardeners and amateurs, the collections staged by Messrs. J. Spencer and G. Johnson of Bedford, who were respectively first and second, being very creditable and clean.

Where advancing success attends an undertaking like the Sandy Show, which is well and systematically carried out, it would probably be injurious to make any material alteration, especially as the schedule is a liberal and comprehensive one; but as the Society has not only emerged from its infancy but has become an important institution since the schedule was originally framed, there is scope for a corresponding expansion in some of the divisions, and as the finances of the Society are also in a healthy condition there can be no reason why Pine Apples should not on a future occasion be recognised. The public are much indebted to the Honorary Secretary (Mr. E. T. L. Smith) and the Secretary (Mr. Green) for the quiet and business-like way in which the Show is managed, complaints and mistakes at Sandy being very exceptional. An immense concourse attended the Show, which combines poultry, farm produce, cage birds, and bees with horticulture, and I understand that the receipts were in excess of those in former years.—T. LAXTON, Bedford.

THE SHANKING OF GRAPES.

It is a singular fact that fungus is so often said to cause disease. The Potato disease has repeatedly been attributed to it, so has Peach blister, and now we are told that it gives rise to the shanking of Grapes. In every instance the idea is erroneous. Spores of fungi are so minute as to be invisible to the naked eye, and are probably so light as to be blown hither and thither by every current of air and deposited upon the surfaces of any plant with which they come in contact. Sooner or later the germs vegetate, and in most cases perish for want of a suitable nidus wherein they may flourish and attain to full development. The diseased epidermis of any part of the young and tender growth of plants affords this medium, hence when upon examination the affected part is found infested by fungi an outcry is raised that fungus precedes and is the cause of disease, when in my opinion it follows and is a mere result of it. The fact of the liability of delicate sickly human beings to suffer from infectious diseases, while those in robust health are untouched, is well known to medical practitioners, and the analogy which exists between plant and animal life should fairly induce similar conclusions on the part of horticulturists, and be taken for a guide in the treatment of their patients.—EDWARD LUCKHURST.

PERMIT me to say in my remarks last week the word "freshness" should read "fleshiness." Sulphur applied in any form does not exert the slightest effect upon the disease.—J. S. W.

EARLY RECOLLECTIONS OF FLORICULTURE.

I WELL remember when I first made my essay in gardening at eight years of age (1806) with my playfellow, but flowers were not in our possession, and we were content to grow Mustard, Cress, and Radishes in a plot of ground now surrounded by dwellings. Well do I remember buying my first flower plant, a Sweet William, for which I paid 2d., and shortly after my father purchased the goodwill of a small garden one mile from our dwelling, and then my love of flowers increased. At that age my pocket money would not do much; however, a neighbouring grower of Pinks aided me, and one day he invited me into his garden and gave me some cuttings. The only names I recollect in the Pinks was one named Midshipman, a red-laced variety; and Davey's Eclipse, a black and white variety; and year after year additions were made by seedlings. Faulkner raised a purple-laced Duke of St. Albans, one that for some years was able to keep all varieties at a distance until the Duke was surpassed by others in 1807. Few florists could cultivate any other varieties, as the price enabled a working man to spend his few shillings in what from circumstances he was compelled to grow. A few who had trades that enabled them to earn good wages bought a few of the low-priced Auriculas, and in course of time they made a gay appearance in their gardens.

In Lancashire (Middlton) the men were principally employed as weavers, and added to their stock. If possessed of forty or more plants they were considered to have a collection, and several who were noted for their knowledge of them were written to, to supply growers in the south and other parts of England with plants. Years elapsed before the largest growers could have a

collection amounting to 150. There are only a few growers now, as the manufactories have polluted the atmosphere, and Polyanthes and Auriculas will neither grow nor flourish except in the purest of atmospheres. Pinks from a very early period were considered the poor man's flower. He could purchase a pair of plants for from 2d. to 2s. 6d., and at that period they were poor worthless things. Cultivation did all for them, and as they were in a manner semi-double and produced seed very freely, a great number of seedlings were annually raised. A gradual improvement took place, and instead of serrated petals a few rose-leaved occasionally appeared, until at last a rapid stride took place. A variety raised in the south named John Ball, a red-laced variety, supplanted all, taking for years the first prize, but I understand John Ball has now to play second fiddle.

Auriculas made but slow progress, and but few good varieties were raised from seed. I do not know a flower that produced such poor varieties for years, and even now few that are equal to the old forms are rarely to be seen. Gerard in the year 1597 does not give much information respecting them. I have made very strict inquiry at times, and but little is known respecting them. The growers were illiterate men and could scarcely write their names. The earliest period known when Auriculas were grown in Lancashire was 1725. The earliest Auricula show was held at Eccles, four miles from Manchester, in 1780, and it was afterwards removed to Middleton near Manchester, having a fixed time for showing—viz., 20th of April. The oldest variety exhibited was in 1757, called Rule Arbitrator, green-edged, and from that period to 1831 few additions were made. Lees' Colonel Taylor, green-edged, was first shown in 1831, and for many years maintained a first-class position; Taylor's Glory, white-edged, was shown as early as 1821; Booth's Freedom, green-edged, was exhibited in 1841; and Page's Champion in 1851. Lancashire's Lancashire Hero was first shown in 1852, and from some altercation was sold to Cheetham of Rochdale, and he then sold out as if he had raised it. My situation became so vitiated that I was compelled to cease growing Auriculas about that time.

Tulips were great favourites with me, and I grew a worthless lot until I became a favourite with one of the oldest and best of our local growers. I had £3 given me to spend with him, and he selected for me Incomparable Reine de Perse, 20s.; Rose Unique, 15s., now can be had for 3d. or 6d.; Maître Partout, now discarded; Gond Beurs also, and Gold Mount, not known now. He made me a present of a great quantity of offsets, and when they grew into bloomers there were a great number of a variety called Duc de Savoy, and being of a good strain I sold them readily at 1s. 6d. each, which money was laid out in other varieties, and by that means I obtained a collection something like what my neighbours were growing. We had but few English-raised varieties, and the Dutch being the only possessors of them they charged enormous prices.

In England, Bethnal Green was then considered to have the most numerous growers, and few possessed more than a small bed from 1 to 4 yards long. This went on for some time, until a gentleman of means who lived at Croydon turned his attention to raising seedlings, and no grower has ever been so fortunate as he was, and even now some of our finest varieties are of his raising. Influenced by his success many of our lovers of the Tulip began to gather seed and sow it, and a few were successful. It must be borne in mind that taking seed promiscuously is generally a loss of time; and there is an old saying, that if you raise five hundred seedlings you will be lucky if you obtain one good one, but by taking seed only from the best and choicest varieties we have distanced the Dutch, and they have but few that will take rank with ours. The Chellastons as they were called being raised by one Gibbons, who resided at that place, made a great noise in the floral world, and although they numbered 350 varieties, scarcely any of them are now ever seen at an exhibition. Others tried their skill on a small scale, and have now enabled us to be classed as having the finest collections in the world, and they can be purchased at very reasonable prices.

The last catalogue which I saw from Holland contained a very small number, many of which have long since been discarded from our collections. I have raised a few, some of which sold at the price of £5 per root. It was always my aim to take seed from first-class varieties, and also by crossing them I seldom had many to discard. I again caution those who are desirous of raising something that will stand for years and take a place at an exhibition, to be always careful in selecting seed.

The Pansy is one of our flowers which from a weed has become a most beautiful flower, and shows how much can be done by cultivation. Good seed will generally produce some good varieties. I remember well one of the first coming out at 10s. 6d. each plant, that would now be considered as not worthy a place in any col-

lection. There was quite a rage for this flower at one period, and I have had 5s. each given me for cuttings. I also remember them being first exhibited at our Society, and 21s. was given for the first prize, and 1s. for the one placed tenth in the class. They are but partially shown at present, and in collections of six, twelve, and twenty-four, and only a few shillings for each prize. I am a great admirer of those raised in Belgium, some of which are very beautiful. There is no flower that sports more from seed than the Pansy, even from the best seed you will have many no better than the original. It was in 1828 I was induced to persevere in raising Pansies, and by so doing I in a few years had a collection second to none.

Floricultural novelties were the order of the day. Lady Holland introduced the Dahlia, which at first was only semi-double. I purchased two roots at 15s. each, and the blooms only consisted of seven petals. A few years elapsed and a double variety was produced, said to be raised by the gardener at Crowcroft, a little more than three miles from Manchester. After a time another improvement took place in one called Springfield Rival, which was a decided advance upon any then raised. Dahlias were in the ascendant for some time, and from various statements many that were worthless introduced. In 1844 only eighteen varieties were catalogued, and in 1845 only eight varieties were thought worthy of being grown. In 1847 there was catalogued seventy-two varieties, and in 1849 out of these only fifty-seven were considered worth growing, and in 1852 they had not increased very much.

Fuchsias.—When in 1828 I grew a few plants in my cottage windows there were only *Fuchsia coccinea* and *Fuchsia gracilis*. The next improvement was *F. globosa*, then *F. exoniensis*, and I leave it to those who now grow them to speak as to their present improvement. Having obtained the two Fuchsias mentioned I had space for more plants, and in 1828 the only Geraniums, now called Pelargoniums, were a variety called Davyana, a dark ground; and *Macrantho*, one with a white ground and a blotch eye. In this class of plants the improvement is really wonderful. To Messrs. Foster, Hoyle, Beck, and Turner we are much indebted. I have never seen latterly any that are much in advance of what were grown a few years back, excepting those called French varieties.

Carnations and Picotees were early grown and exhibited, but with the exception of Carnations the Picotees were worthless, and only a degree removed from the originals. A variety called John's Prince Albert was the pioneer of our beautiful specimens. It was a prolific seeder; and Ely of Rothwell Haigh, near Leeds, who was one of our most enthusiastic growers and raisers, took advantage of its seed-bearing properties and raised Field Marshal and others in advance. Other growers also added to the number, and they have so much improved that it is scarcely possible to advance further. Mr. Charles Turner, Mr. Dodwell, and Mr. Simonite of Sheffield have done much for them.

A notice of the exhibitions in 1830 will no doubt be interesting, as Mr. William Smith and myself were the two acting Secretaries, and Mr. Barber the Honorary Secretary of the Manchester Floral and Horticultural Society which had been a few years in existence. Its revenue for several years amounted to upwards of £500 annually, and was devoted to the improvement of all classes of plants and flowers then known. Its schedules were far different from what they are now, and had a very great tendency to encourage growers. The Polyanthus and Auricula shows were generally held in April, and the flowers were shown in classes; eight and sometimes ten prizes were offered in each, the first prize ranging in value from 21s. to 10s., and the last prize 1s. For stove and greenhouse plants 21s. was the first prize, and the tenth 1s. Single plants only were shown, not as now twelve or six plants. Fruit and vegetables were not forgotten, and any new introduction was not left unnoticed. At these Shows I only recollect the exhibition of one Orchid, *Oncidium papilio*, and few collections were in existence.

Exhibitions have now grown to such magnitude that only those who possess large houses and plants can compete in the principal classes, and the cottager has generally to content himself with the enjoyment of his humble collection at home.—JOHN SLATER.

PLANT PORTRAITS.—Last April Sir Michael Hicks-Beach transmitted to Mr. J. Gordon Sprigg, Colonial Secretary at the Cape of Good Hope, in a circular dispatch that was at the same time addressed to the other colonies of South Africa, Australia, New Zealand, and the Mauritius, a copy of a letter from that zealous botanist, Sir Joseph Hooker, K.C.S.I., C.B., notifying the purpose of an accomplished artist, Miss Marianne North, to visit those parts of the world, and, with the aid and counsel of scientific authorities resident in the several districts, to make faithful pictures of remarkable trees and plants, for presentation to the

Royal Gardens at Kew. These works of botanic portraiture are intended to complete a series in which the lady had made considerable progress, inasmuch that, before her departure, the collection already included hundreds of views which she had taken in the East and the West Indies, Brazil, Java, Ceylon, Borneo, Japan, North America, and the Canary Islands. The great importance of that labour of love which Miss North has undertaken at her own cost can be best appreciated by those persons who, in commercial, educational, and industrial pursuits, have felt the want of a comprehensive and accurate source of pictorial reference, especially in relation to the Gum Trees of Australia, the Pines of New Zealand, and the Aloes and Heaths of the Cape Colony, which, together with all the peculiar, varied, and beautiful flora of South Africa, have hitherto lacked efficient illustration.—(*Daily Telegraph*.)

SOUND AND DISEASED POTATOES.

IN these days of anxiety respecting the Potato crop most of us who are sufficiently interested in the matter are glad to read the reports from persons writing from all parts of the kingdom. I therefore offer the results of my experience. Last year I planted Myatt's Prolific and Dalmahoy; my crop of sound Potatoes scarcely exceeded the seed planted. This year, at the beginning of March, I planted Myatt's Prolific and Sutton's Magnum Bonum. The early variety is much diseased, but the others—Magnum Bonums—have turned out a splendid crop, large, sound, and bright-skinned; in fact my gardener and an old man he had to assist him are of opinion that they never before dug up such a fine crop of sound Potatoes. The garden soil is a porous sandy loam, which never appears sodden after the heaviest rains. The two varieties were grown close together, and treated in every respect alike, and yet with what different results!—W. G., *Elmdale, Sutton, Surrey*.

SALTBURN FLOWER SHOW.

ALTHOUGH this is but the third Exhibition held here it promises by its rapid advancement to become one of the best exhibitions in the north. The site selected is an admirable one, being contiguous to the pleasure grounds of the Saltburn Improvement Company, the grounds being situated in a ravine, with beautiful undulating surface with a stream of good width at the bottom. The grounds are tastefully laid out, long walks shaded by overhanging trees, others open, with flower beds showing great taste in the arrangement, there being a great variety of trees and shrubs both evergreen and deciduous, Roses, and hardy plants; indeed, there is everything calculated to afford enjoyment. The woods and pleasure grounds of Rushpool Hall adjoining were, with the customary kindness of the proprietor (Mr. Bell) also open to visitors. The weather (August 19th), though threatening in the morning, cleared up fine by noon, and remained so, contributing greatly to the success of the Exhibition. The arrangements of the indefatigable Secretaries, Messrs. Adamson and Burn, were very satisfactory.

The show of stove and greenhouse plants was rather extensive, the plants being large, well grown, and splendidly flowered. For six plants in bloom Earl Zetland, Upleatham Hall (E. H. Letts), was first with *Stephanotis floribunda*, about 4 feet high and nearly as much through, and finely bloomed; a specimen of *Erica insignis*, over 4 feet across, and well flowered; *Bougainvillea glabra* of similar size, the bracts being highly coloured; *Allamanda Hendersoni*, finely flowered; a remarkably healthy and profusely flowered *Erica Fairreana*; and *E. ampullacea Williamsi*. A close second in the same class was H. Pease, Esq., Pierremont, Darlington (W. Yule), with a magnificent specimen *Eucharis amazonica*, with over fifty scapes, and five to seven flowers each. Third honours were taken by E. W. Swan, Esq., Middlesbrough (Alex. Kevan, gardener), with neat specimens. For six variegated or ornamental-foliage plants Mr. Letts were again first with grand specimens of *Croton Wismanni*, *Gleichenia rupestris glaucescens* in capital health; *Dasyliion acrotrichum*, *Chamærops humilis elegans*, very fine; *Dion edule*, and splendidly coloured *Croton Johannis*. Mr. Yule was placed first for three with well-grown plants of *Pandanus Veitchi*, *Areca sapida*, and a *Dracæna*. In the class for three exotic Ferns, equal first prizes were awarded to Edmond Grove, Esq. (Mr. J. Rutters), Saltburn, and Mr. Alex. Kevan, the former having plants fully 4 feet through of *Adiantum gracillimum*, *A. farleyense*, and *A. cuneatum*, the latter having equally large and fine specimens.

Table Decoration.—Table set for ten, with flowers, fruits, glasses, napkins, &c., à la Russe. First honours were secured by Mr. Letts, the arrangement being very light, chaste, and elegant, having a neat plant of *Cocos Weddelliana* in a centre, with a ground of *Selaginella apoda*, sprinkled with *Lapagerias* and *Roses*, the lower fronds of the *Cocos* supporting fine spikes of *Odontoglossum vexillarium*; the ends were glass epergnes or stands with *Lapageria alba*, *Odontoglossums* and *Roses*, Maidenhair Fern, and vases of *Lycopods*. The fruit comprised Grapes, Peaches, Figs, Strawberries, Melon, and Apricots. Mr. S. Taylor (Wm. Mann), Brotton Grange, was a close second with a very effective centre of choice flowers displayed in a glass stand,

and neat plants of *Reedia glaucescens* at the ends. The fruit comprised Pines, Grapes, Peaches, Pears, and Melons. Bouquets were in strong force, Mr. Richard Parker, Guisbro', being awarded first prize for a wedding bouquet, very tastefully composed of *Eucharis*, *Stephanotis*, *Jasminum grandiflorum*, white *Erica*, and *Lapageria alba*. The same exhibitor also took first for a ball bouquet.

Dahlias were in strong force. For twenty-four dissimilar blooms Mr. R. Harkness, Bedale, was deservedly placed first with blooms of great size, fine form, and purity of colour. The varieties in this grand stand were Vice-President, James Cocker, John N. Reynier, John Wyatt, The Countess, Flora Wyatt, Louise Neate, Henry Walton, Julia Wyatt, Hon. Syd. Herbert, Mrs. Stancomb, Seedling, Delicata, Dr. Moffatt, John W. Lord, Royal Queen, Bessie Lord, James Service, Royal Purple, Harry, Cremorne, Thos. Goodwin, Countess of Pembroke, and Cbris. Ridley. Second, H. Clarke, Rodley, Leeds, with capital blooms of great size and purity of form and colour. Mr. Boston, Cawthorpe, Bedale, was a good third with large blooms. In twelve the above-named exhibitors changed places, Mr. H. Clarke being first and Mr. Harkness second. For twelve Dahlias, fancy varieties, Mr. A. Clarke was placed first with admirable blooms of Octoroon, Eccentric, Singularity, Egyptian Prince, J. B. M. Camm, Gaicty, Flora Wyatt, Mrs. Saunders, Tipy Bob, and Charles Wyatt. Mr. Boston was a good second. Hollyhocks since the disease are somewhat scarce. Mr. Boston staged an excellent stand of twelve varieties, remarkable for compactness, substance, and colour; Mr. H. Stairmand, Eastbourne, Darlington, having a grand lot of blooms, and was placed second.

In the class for Roses, eighteen varieties, Messrs. Mack & Son, Catterick Bridge, took first prize with handsome blooms of Madame Hausman, Madame Thérèse Levet, Comtesse de Serenye, Madame Charles Wood, Marquise de Castellane, Star of Waltham, Marie Verdier, Marie Rady, Marie Finger, Alfred Colomb, François Michelon, Baroness Rothschild, Emilie Hausburg, John Stuart Mill, Maréchal Niel, Duchesse de Vallombrosa, and Marguerite Brassac. Mr. Harkness was a good second. Twelve varieties cut flowers, were well shown, Mr. Letts taking first prize with fine examples of *Lapageria rosea*, *Stephanotis floribunda*, *Bougainvillea glabra*, *Allamanda Hendersoni*, *A. grandiflora*, *Anthurium Schertzerianum*, *Statice profusa*, *Dipladenia Brearleyana*, *Eucharis amazonica*, *Ixora Williamsi*, *Lapageria alba*, and an *Erica*. Mr. Yule was a close second. Mr. Edmondson Fletcher, Cbarlestown, Baildon, Leeds, was first with Asters, beautifully quilled, and the same exhibitor took first place for twelve French Marigolds, grandly striped. For six Gladioli spikes Mr. Harkness was far ahead of all competitors; also for three. In addition to the preceding were an excellent display of other cut flowers, making a display which was much admired.

Fruit was excellent for the season; what was lacking in quantity was amply compensated for by the quality of the productions. For a collection of six varieties (Pines excluded), the first prize went to H. O. Norwig, Esq., Grove Hill, Middlesbro' (Mr. T. Hanson), with magnificent bunches of Duke of Buccleuch Grapes, the bunches being little short of 3 lbs. weight each, very symmetrical in shape, berries large and faultless in every respect. Black Hamburg Grapes were shown large alike in bunch and berry, splendidly coloured, and well bloomed; *Violette Hâtive* Peaches, good; Lord Napier Nectarine, large and well coloured; Greengage Plums, fine; and a finely netted Golden Queen Melon—altogether a collection of great merit. Mr. S. R. Jowsey, Ledbury Park, Richmond, Yorks, had a capital collection, especially Grapes, and was placed second. For two bunches of black Grapes Mr. Aitken was first with Black Hamburg, two bunches over 3 lbs. each—very fine berries and beautifully coloured. It may be worth mention that the Grapes were cut from a Vine carrying 125 bunches of similar size. Second honours were taken by Mr. C. Hockney with fine examples of Black Hamburg. For two bunches of white Grapes Mr. Jowsey was first and Mr. W. Mann second. The first prize for six Peaches went to Mr. Jowsey for Royal George; and the second to Mr. J. Shepperd, Preston Hall, Stockton, for Grosse Mignonne.

Vegetables were never in better quality than at this Exhibition, the prize list being a liberal one, and brought a legion of competitors. For a tray of eight distinct varieties Mr. John Snowdon, Thirsk, was first, having splendid Tripoli Onions, Negro Kidney Beans, International Potato, Telegraph Peas, Excelsior Tomatoes, Veitch's Autumn Giant Cauliflower, and immense heads of Celery—a really good collection. For a brace of Cucumbers Mr. Arthur Whitten, Arkern, was first with what appeared to be Tender and True, but very few varieties were named either in fruits or vegetables. Cauliflowers were very fine, particularly those taking first prize, from Mr. R. Bean, North Skelton. In Tomatoes Mr. W. Lawrenson was first with Criterion, and Mr. W. Russel second with Excelsior. Potatoes were in splendid condition and in great quantity. For twelve kidney Potatoes Mr. C. Hockney took first with International; whilst for twelve round Mr. W. Mann was first with excellent examples of Porter's Excelsior.

The cottagers' productions were extremely fine, the principal exhibitors affording undoubted evidence of their skill as cultivators of the most useful of garden produce.

For six plants for table decoration grown in 6-inch pots, Mr. W. Yule was first with *Cocos Weddelliana*, *Geonoma gracilis*, *Aralia leptophylla*, *Pandanus Veitchi*, *Kentia Wendlandi*, and *Aralia gracilima*, the prize being books, value 21s., given by Mr. B. S. Williams. A further special was given for six tuberous-rooted Begonias, and was

taken by Mr. Short, Stokesley, with seedlings of his own raising, Electric Light being an intense fiery scarlet, with very large flowers, well on to 6 inches across—an exceedingly fine variety. Mrs. Short was very good, also *Fimbriata*, *Magentiflora*, and T. B. Morton; the other unnamed but very good. Several other special prizes were given, which added much to the extent and variety of the Show.—G. ABBEY.

MEALY BUG IN VINERIES.

I WAS glad to find from your issue of the 12th ult. (see page 138) that someone was free from this pest, and I wish I could say I had entirely stamped it out. I cannot agree with your correspondent "R. M.," that a vinery badly infected with bug can be cleared in a single season. When the insect is amongst the drainage how would "R. M." destroy it? If plants are not placed in vineries it may greatly be reduced, but I fear "R. M." would fail in his first attempt to thoroughly eradicate it. The practical article from the "Gardener" in the same issue, points in the opposite direction. I have tried everything to stamp out this pest over a series of seasons before thoroughly accomplishing it. If I have been working wrongly, "R. M.'s" advice, with more minute details of his system, would have proved of great advantage long ago to others besides myself. I have had mealy bug to contend with in quantity during the past few years. How it entered the vineries is not a question for me to decide. I found it there and started in earnest to exterminate it. All infested plants have been kept out, and softwooded plants that could be propagated easily were thrown away, and clean stock started. So far I have failed to destroy the bug as quickly as "R. M.," but labour and trouble have not been spent in vain.—WM. BARDNEY.

FORTUNATELY I have never been troubled with this pest on Vines, but have had quite enough experience of it on plants and Peach trees. I believe I am now quite free of it, not having seen one for three months. For the last three years I have been waging war against it, and believe I have now vanquished the enemy. Two Peach houses were so infested with it that dressing the trees in winter was useless till I adopted the plan of washing the trees and trellis with benzoline, and as the eggs which were not destroyed hatched out, and the bugs were visible, I touched them with a feather dipped in benzoline; the result has been so satisfactory that I have not seen one insect for at least three months. I followed the watching daily for several weeks until not one could be found. Now the two houses, each 50 feet long, will bear inspection by the keenest eye. Where the spirit could not be readily applied, or there was any suspicion of the enemy sheltering under erevices, a little spirit was dashed in, a light applied, and literally burnt them out. The result is so satisfactory that nothing else will be used by me should I need it, which I hope I shall not. The remedy is safe, simple, and cheap, as all who are plagued with either mealy bug or scale will find if they make use of it that it is effectual.—JOHN GADD, *Thorndon*.

MESSRS. VEITCH'S SEED FARM AT SLOUGH.

HAVING been deprived of their trial grounds in Fulham by the railway company, the Messrs. Veitch have removed this important branch of their business into more distant and decidedly more roomy quarters. About half way between Langley and Slough, on the Great Western Railway, they have procured by purchase some 50 acres of land in the parish of Langley, which, though necessarily somewhat rough at present, is rapidly assuming under the able management of Mr. J. Newby, late of St. Osyth, a neater and more presentable appearance. After the dingy brickfields which continually meet the eyes of travellers the whole of the journey from Southall to Slough, a peep at the rich and varied colours in the grounds of Langley Farm affords a change at once agreeable and refreshing. Visitors to the farm may alight at either Slough or Langley, but the former station is preferred, as conveyances may be hired for the convenience of those persons who wish to avoid a tiring two-miles walk along the dusty road, which has to be traversed before the grounds are reached. Once there, however, the troubles of the road are soon forgotten in the admiration engendered by the glowing masses of colour which the farm presents.

Mr. Newby first takes us to see the vegetables, and points out to us about an acre of Parsley, from which every plant of doubtful quality has been removed. This is a selected form of Myatt's, and is seeding well. In another part of the farm is a similar piece of the Fern-leaved variety, which some people prefer. Next comes about an equal quantity of Broccoli, Lauder's Goshen, a fine late white variety, which Mr. Newby is very careful to keep true. Again, as widely distant as possible, is similar breadth of the valuable late variety Model, of which the demand is great. Other sorts

are also grown, all widely separated. All the Broccolis are grown of their full size for seeding, and every plant rejected that shows the slightest variation from the standard type. A very large breadth of Veitch's Red Globe Turnip will, it is expected, secure seed for all applicants, many of which have hitherto been disappointed in obtaining a supply of this fine variety. The extensive breadths of Beet tell how great is the demand for this vegetable, Nutting's Selected being the most popular of all, and consequently grown in the largest quantity. Seakale is in abundance, and the supply of roots for forcing will, according to present appearances, be both plentiful and good.

Of Potatoes, all are more or less affected with disease with the single exception of St. Patrick. Prince Arthur, however, a fine variety, which received a first-class certificate from the Royal Horticultural Society, was but slightly touched. Early Rose, Grampian, Lapstone, Schoolmaster, and several other sorts were turned up, none of which had escaped the malady; but of St. Patrick, of which several roots were examined, not one Potato was found to be affected in the slightest degree. This Potato is very prolific; the tubers are very large, well-shaped, and excellent for eating purposes. St. Patrick is an American variety, sent out last year in England for the first time, and it will probably be



Fig. 46.

largely grown when it is better known by English, Scotch, and Irish cultivators. Many other crops beside those mentioned are to be found in the vegetable department, and all are in a satisfactory and flourishing condition. The soil, which is light and open, is well adapted for seed-growing, and all "rogues" among the seed beds are dragged out unmercifully, the utmost care being taken to keep the stocks select.

And now we turn to the flowers, which are grown in large squares. Here a splendid bed of the blue Viola Magnificent, there a mass of pink Saponaria, and in the background large masses of Malope, Bartonia, Sweet Peas, and other showy and tall-growing annuals attract attention. A splendid bed of Indian Pinks, the flowers being of exceptional size and richness of colour. Nearly all are double, few, if any, being inferior, while some are decidedly better than the flower represented in fig. 46. For beds, borders, and cut flowers these easily grown varieties are very valuable. A bed of the beautiful French hybrid Leptosiphons, delightful little flowers of almost every shade, was a sparkling mass of colour. By the side of these are a fine collection of Ten-week Stocks, the flowers being of great size and nearly all double. Yonder is a bed of Nasturtium King of Tom Thumbs, the rich scarlet flowers forming a strong contrast to the beds of blue and yellow bedding Violas by their side. Near the latter are Antirrhinums, a fine selection of moderate growth, intermediate between the major and Tom Thumb types, and a bed of the pretty Viscaria oculata, one of the best of hardy annuals for either autumn or spring sowing. Tropæolum Lobbianum fulgens growing sturdily to the height of 4 feet and trained up stakes is very beautiful, and a dwarf variety selected from it is highly promising. Mignonette is largely grown, Miles' Spiral, Giant Red, Pyramidal, and others, some of the spikes being

15 inches in length. Carnations from seed are exceptionally fine; one plant raised from seed produces ten times more flowers than the florists' varieties from layers, and where large quantities of cut flowers are in request seedling Carnations should not be forgotten. Nearly all the flowers are double, and the colours are rich and varied. One variety—Grenadin—has proved so valuable for its earliness and richness that it is being increased as freely as possible. Larkspurs, Clarkias, Canterbury Bells, including the new rose calycanthema, white Candytuft like masses of snow, Lobelias raised from cuttings, and other showy flowers are there that we cannot enumerate. We must not forget to mention a plantation of the New Japanese Irises—gorgeous varieties that will find their way largely into British gardens. They have just ceased flowering, but it is something to see that their growth is as free as their flowers are fine. The true old Brompton Stock is also here, a grand variety for both pots and borders. Here, as among the vegetables, all is neatness and regularity. Mr. Newby has made many good selections of both flowers and vegetables, and in due time when all the land is under cultivation the proprietors of Langley Farm will no doubt have reason to regard it as amongst their most important acquisitions.

ARAUCARIA IMBRICATA IN SCOTLAND.

WHILST spending an agreeable holiday with some companions at a friend's house in the Glenkens—a district of Kirkcudbrightshire—we were invited by Mr. France, the manager on Mrs. Yorstorm's estate of Ballingear near Dalry, to inspect the grounds, which gave us an opportunity of seeing what we had often heard about, and what is considered in the district as the finest Araucaria in Britain. Certainly it was by far the best specimen of the kind we had ever seen. A note was taken of the measurements, which can be relied upon, and it may interest your readers to have a knowledge of the dimensions. Height, 38 feet; girth at 3 feet from the ground 5 feet, at 5 feet from the ground 4 feet 1 inch. Circumference of the lowest branches which trail along the ground, 76 feet—curiously enough double its height. Its chief beauty lies in its extreme healthy condition, not a flaw from top to bottom. We forgot to ask if it had ever borne any cones. Adjacent is another, all but as fine as that described, and near to is a very fine specimen of the Wellingtonia. Beside a small lake is a Birch 7 feet in girth and of considerable height. There are besides many fine trees growing here and there through the grounds of great rarity. Any of your readers who may have a wish to inspect these Araucarias will, I am sure, receive every attention from Mr. France; and I am certain a visit to Bullengear will be thought by most to be a treat of no ordinary kind, as it is so delightfully situated, and embraces nearly every adjunct of Scottish scenery—hills, dales, lochs, rivers, woods, glens, &c.—F. R.

THE PARKS OF LONDON.—No. 1.

WITHOUT the parks the great metropolis would be deprived of one of its finest features and striking and valuable characteristics; and without the high keeping of those parks, and the diversity and attractiveness of their floral adornment, they would fall far short of their present and richly deserved popularity. The cost of maintenance of these parks is applied to a purpose in every way worthy, and in more than one respect immediately beneficial. They conduce to the health and education of the hundreds of thousands who visit them annually, and through the horticultural press exert a salutary influence on gardens large and small in every district of the kingdom. They are managed by men of skill and taste, who, by their devotion to their duties and the excellence of their work, are worthy of every encouragement by that department of the Government under which they are placed. Hundreds of gardeners visit the parks annually; but as the great majority of them are unable to do so, some description of the more prominent beds will not be unacceptable, commencing with

BATTERSEA PARK.

Not only is the popularity of this extremely diversified and highly picturesque Park maintained, but appears to be ever increasing. It has never been so largely attended as during the present summer, and never was it more deserving of patronage. Owing to the great variety of plants employed there has been something to attract throughout the season, but the Park is perhaps just in the zenith of its beauty now. It is very easy to denounce any particular style of decoration—carpet bedding for instance, and the practice is rather common, especially by those who are not able to carry out the mode themselves. It is also too common to represent that this style of embellishment is almost exclusively practised in the parks. This is decidedly not the case at Battersea, where carpet beds have a comparatively small part

in the arrangements. There are less than a dozen of those beds, and certainly not one too many for the crowds which admire them; in fact, a greater extent of ground is occupied with hardy border and herbaceous plants than with carpet beds, and it must be added well occupied. Early in the summer, June and July, the Funkias made a fine display, their foliage and flowers being alike beautiful. They are planted in broad bands round the margins of the beds, in lines in front of the shrubberies, at the base of shrubs, and dotted about in irregular groups on the lawn. All the best forms are included; the plants are well grown, and their effect was very beautiful. These plants should be more largely grown in gardens. They are quite hardy, and like deep rich soil. Delphiniums were splendid in their season. They are grand park plants, and may with advantage be increased, as also might Foxgloves, which have such a fine effect amongst or near shrubs. Near the east entrance to the Park the beds of Moss Roses have been a great success, and the fragrant masses of the old Provins Cabbage have been much admired. The Rose beds at the western end have also been strikingly beautiful. The association with the dark varieties, such as Crimson Bedder with *Lilium candidum*, proved a singularly happy arrangement. The herbaceous border has been gay throughout, one of the most effective plants at the present time being *Rudbeckia Newmanni*. Lines 100 yards or more in length of *Anemone japonica* and *alba* now in full beauty arrest the attention of all visitors, and associated with the *Anemones* fine clumps of *Lilium tigrinum Fortunei* are both elegant and rich, while also at the present time beds of Phloxes are grand. The variety is The Queen, and the pure white trusses are of immense size. This Phlox, and indeed many others, should be grown in all gardens. Sufficient has been said to show that something more than carpet beds is to be seen at Battersea Park. Carpet beds are, however, represented, and they perhaps receive the lion's share of public attention, judging by the crowds which cluster round them on Sunday nights. Some of these beds are gay, yellow and red predominating. Some are sober, green prevailing; while others are chaste yet cheerful, and extremely neat. "The parks," as Mr. Roger justly observes, "are for the public," and he can only satisfy the necessarily varied tastes by a great dissimilarity of designs and colours. Carpet beds cannot be adequately described without diagrams, yet an idea may be conveyed of one or two of them, and the plants that are employed.

A circular bed attracts primary notice, as it is planted with the new *Alternanthera paronychioides major aurea* as a groundwork. This very distinct variety originated at Battersea and is not in commerce. The prevailing colour is reddish yellow, or almost the "old gold" colour that is fashionable this year. It is totally dissimilar from all others of the genus, grows freely, and produces an uniformly level surface. A scroll of the dark *A. versicolor grandis* effectively occupies the centre of the bed, small circles of *Mentha* being formed in the curves of the scroll, each containing a small variegated *Yucca*. The bed is surrounded with a band, richly coloured, of *Alternanthera amoena*, the raised margin being covered with the silvery *Sedum acre elegans*. This bed is bright yet chaste, and the workmanship is faultless. An adjoining bed is of more sober aspect, the groundwork being of *Mentha*, with three spatulate panels of *Alternanthera* and angles of *Leucophyton Brownii*, the margin being similar to that of the other bed, the arrangement being considered very neat. It were useless attempting a description of the "carpet rug" and "coffin" beds, which are so warmly discussed by the visitors. For some tastes the yellow is too pronounced, but by others, and especially ladies, it is admired for the reason above stated—namely, that it is "fashionable." Far more elegant than these flat beds are some large oblongs. It will suffice to refer to one of them, a bed perhaps 24 feet long by 8 wide. Along the centre are five circles 3 feet in diameter, each containing five or six plants similar to those which take prizes at exhibitions for dinner table decoration. Very graceful in some of the circles are the groups of *Dracæna gracilis*, which contrast admirably with other groups of *Pandanus Veitchii*; again, groups of *Ficus rubiginosa* mixed with *Acacia lophantha* are admired, and *Fuchsia Golden Treasure* associated with *Cuphea platycentra* is a happy combination. The groundwork of these circles is of *Mentha* enclosed with a narrow streak of Golden Feather and a broad and fine band of *Alternanthera amoena*. The groundwork between the circles is of Golden Feather, the bed being bounded with *Alternanthera* and margined with *Echeverias*. Another of these beds with a groundwork of *Nie-rembergia gracilis* has been very pretty as covered with thousands of delicate flowers. The large scroll or S-shaped beds have never looked so well as they do this year. The end circles are filled with *Amaranthus melancholicus ruber*, which is so rich when in good condition, as it is now, from which rise slender and healthy *Cordylines*. The scroll portions of the beds are carpeted in panels

with dwarf Palms, &c., at intervals, which impart to the beds a free and pleasing appearance. A bed of tall variegated *Yuccas* in a groundwork of *Coleuses*, and another of tall *Cordylines* similarly carpeted and appropriately edged, find many admirers. A large round bed carpeted with *Lobelia White Brilliant* and planted with specimen *Dasyliirions* is most chaste. This is the best of white *Lobelias*, and seen in good condition meets with general approval. In striking contrast a still longer bed adjoining is filled with striped *Petunias* dotted with stately plants of *Brugmansia Knightii*. At the margin of the *Petunias* are some fine Cockscombs, the bed being margined with a dwarf scarlet *Tropæolum*. The *Petunias* (Hender's strain) have been very gay, but are now losing their markings. The beauty of the bed, however, will be maintained by the *Brugmansias*, which are producing their large trumpet-shaped flowers freely. A still larger and very imposing bed some distance from the path is chiefly planted with *Eucalyptus globulus*, quite a plantation of Blue Gums, the young trees being about 8 feet high. They are surrounded with a band of a tall scarlet *Pelargonium*, next to which is a fine row of *Viola Blue Bell* margined with *Gazania splendens*. This arrangement has been most effective for some weeks past.

It may usefully be recorded that the *Viola* named is the most satisfactory of all the blue or purple varieties that have been grown in the Park. It is of excellent habit, very floriferous, and has continued in beauty throughout the season. Another variety, *Duchess of Teck*, is similarly free; it is a pale lavender blue, and the two beds of it at the west end of the Park have had hosts of admirers. Mr. Roger considers these the two most useful bedding *Violas* in his possession. The *Eucalypti* are raised from seed annually, the plants intended for next year's planting being now about a foot high and established in pots. Such free luxurious specimens as those above referred to have an unique effect, the foliage both in form and colour being totally dissimilar from that of any other trees or plants in the park.

A group of *Aralia papyracea* margined with *Salvia argentea* appears to great advantage, the growth of the plants being unusually luxuriant. Another subtropical plant is in splendid condition, *Polymnia grandis*, with magnificent deeply lobed leaves 2 feet long and 1½ in diameter. No ornamental-foliaged plant exceeds this in beauty, and few equal it. It is raised from cuttings. The plants are 6 feet apart in a groundwork of *Heliotropes*. Another subtropical exceptionally fine is *Solanum macrophyllum*, the leaves being of immense size; the groundwork of this bed is of *Verbena venosa* and *Lantanas*, margined with *Sempervivum canariense major*, one of the finest of the succulents. A bed of *Ricinus sanguineus* rising from a mass of *Veronica Andersonii variegata*, edged with *Agcratum Countess of Stair*, is both stately and pleasing; and the darker *R. Gibsonii* associated with *Chrysanthemum coronarium* and edged with *Heliotropes* is excellently placed and telling. *Solanum laciniatum*, it may be observed, is affected in apparently the same manner as Potatoes, and the plants have to be removed.

Some mixed beds of choice foliage and flowering plants afford acceptable variety, and merit and receive the close examination of visitors. In one of these beds *Lilium auratum* is remarkably fine, *Tigridia pavonia* very gay, *Kalosanthes coccinea* with glowing heads, *Begonias* both elegant and rich, and *Agapanthuses* have been prominent, the variegated foliage of *Eurya latifolia variegata* cheerful, and *Sonchus laciniatus* graceful. *Desmodium pendulæflorum* is just commencing flowering; and *Abutilons Lemoinei* fine yellow, *Boule de Neige*, and *Darwinii tessellatum* contribute to the general effect. *Abutilon brasiliense*, too, is represented by several fine plants; the leaves are very large, cordate, exceeding a foot in diameter, and faintly veined with pale yellow. A bed of this plant is edged with *Artemisia Stelleriana*, and the elegant *A. judaica* is employed in some of the arrangements. This is a highly distinct silvery-foliaged plant, and very suitable as a hanging plant for vases.

Some of the marginal plants in the raised beds or borders fronting the shrubs give a fine finish to the picturesque nooks that abound in the Park. A row of a fine scarlet *Pentstemon* a striking, and more sober in effect, is the small yet elegant *Fuchsia pumila*. The crimson pendent inflorescence of *Love-lies-bleeding* (*Amaranthus caudatus*), drooping over a curved line of a silver bicolor *Pelargonium*, has a pretty effect; but perhaps the finest of the edgings are of the old variegated *Pelargonium Manglesii*. These—as backed with Mrs. Holden *Pelargonium*, pink, large trusses, and in one instance margined with *Convolvulus mauritanicus*—are extremely chaste. The *Convolvulus*, however, cannot be seen to advantage except early in the day, its beautiful satiny blue flowers being closed in the evening.

Cannas are in fine condition this year, the bright sun overhead of the past three weeks and copious applications of water to the

roots suiting them admirably. Of the yellow-flowering varieties *Annei grandiflora* is perhaps the best, the flowers being large and clear. *Gladioliflora* is an excellent orange-red variety with good foliage; *Secrétaire Kopner*, rich scarlet, is free, early, and good; *Van Houttei* is one of the best of the dark-foliaged; and *Peruviana* the finest green-leaved variety, with long spikes of bright scarlet flowers. Although *Cannas* will generally survive the winter if left in the beds and protected with manure and leaves, it is found the best practice to take them up and winter them under the stages of plant houses in cocoa-nut fibre or leaf soil.

Pelargoniums are also flowering with great freedom, and the beds have recently been very gay. If a large bed of an intense glowing crimson is wanted, obtain a stock of *Charles Schwind*. If a smaller bed of the same colour is coveted, plant *Henry Jacoby*. Nothing can surpass them in richness as seen in the Park. There is an abundance of good pink bedders. Perhaps the finest bed is of *Mrs. Ward*, rosy pink; but *Mrs. Lancaster*, salmon pink, is excellent, and equally so but paler is *Mrs. Quilter*. For producing a mass of glowing pink the old *Cleopatra* must not be despised. A bed of it near the western entrance is fine, and the visitor will also notice there a charming mixture of the veteran *P. Manglesii* above mentioned, and a dwarf scarlet *Tropæolum*; he cannot fail to notice also and admire in the same design edgings of the pink *Lobelia Omen*. Of the *Nosegay* Pelargoniums *Waltham Seedling* wears wonderfully well; indeed, for continuous flowering it is unsurpassed, if equalled. Of *Bonfire* there are also brilliant masses, and *Fire King* is very good. One of the best of the rather tall scarlets—large in truss and bright in colour, fine for large beds and borders—is *Montrouge*, and the best dwarf is probably *Vesuvius*; but *Little David*, a miniature *Tom Thumb*, must not be forgotten.

In another portion of the Park are long lines of superior double yellow and white varieties of *Chrysanthemum coronarium* that show to great advantage. A dwarf yellow French *Marigold* is largely employed, and winding lines of *Calceolarias*, *Gains's Yellow*, are not too bright for their position in front of sombre masses of shrubs. In front of the *Calceolarias* dwarf *Ageratums* are extremely beautiful—*Countess of Stair* and *Cupid* (Ireland and Thomson), the latter is dwarfer and darker than the former, but both are good. Of the blue *Lobelias* *Mazarine Gem* and *Brighton* are perhaps the best, a line of the former being splendid. *Dahlias* are just coming into beauty, and seedling *Verbenas* mixed with *Mignonette* make a sweet and pretty border.

Such is a passing glance of the most noticeable plants in this Park, but one other feature remains to be briefly noticed—the “Wilderness.” This is a new feature near the north-eastern entrance, and is not yet opened to the public. It is composed of mounds and dells, high banks, and curving walks. At the bottom of the dells the variegated *Comfrey* (*Symphytum asperum* variegatum) is effective, and on the banks there will in a year or two be a grand display of the valuable *Hydrangea paniculata grandiflora*. The *Aralia*-like plant *Dimorphanthus mandshuricus* is flowering freely in this corner of the Park, which is sure to be much patronised by the public when it is opened.

Battersea Park is worthy of the country, most creditable to Mr. Roger, his foreman Mr. Hart, and other assistants; and that it is valued by the public sufficient proof is afforded by the fact that it is not unusual for from thirty-five thousand to forty thousand people to enter the subtropical garden during fine Sunday evenings.

KENNINGTON PARK.

This small but gay and much-crowded Park in the south of London is also under the superintendence of Mr. Roger, and is admirably kept by Mr. Brown, a practical gardener and industrious man. No lawns and terraces can be kept neater than they are here, and no beds and borders can be imagined more bright and cheerful. The position is not well adapted for subtropical plants, and only a few down the centre of the large sunken panels are occupied with ornamental-foliaged plants—*Cannas*, *Variegated Maize*, *Perillas*, *Centaureas*, &c.—in mixture, but the beds of flowering plants on the terrace are in the most satisfactory condition. Carpet beds are comparatively limited, there only being eight of these—the corner beds on two terraces, but they are excellent of their kind, one or two of them being very superior. In one of these beds a scroll of *Sedum acre elegans* surrounded with a streak of yellow (*Golden Stellaria*) in a rich ground of *Alternanthera magnifica*, with cushions of *Mentha* and raised succulents, a fine close green band of *Herniaria glabra* lined with *Kleinia*, then another thin line of yellow, and an edging of *Echeverias*, is an arrangement that should be seen by all admirers of this style of decoration. The colours are so well balanced and the design represented with such precision and accuracy as to render the bed in the highest degree artistic. No one can justly say that

carpet bedding is overdone in this Park, and it is incontestable that the few beds are greatly admired by thousands of visitors. Amongst the Pelargoniums the dark varieties *John Gibbons*, *General Outram*, *A. F. Barron*, and *Rev. J. Atkinson* are glowing masses. *Cerine* is a lively pink, and *Lizzie Brooks* a fine soft scarlet. Most of the beds are edged with a silver bicolor variety and edged with *Lobelia Porcelain Brilliant*, a fine variety in splendid condition. In the centre of the terrace the formality of the arrangement is broken by the Ivy-clad cottage and the raised banks of flowers sloping from the hedge which partly surrounds it. One of these banks is covered thickly with *Pansies*, *Phlox Drummondii*, and *Mimulus* in mixture, with blocks of *Zinnias* here and there, and a line of these flowers next the hedge. The other bank has a groundwork of *Petunias*. The double *Zinnias* obtained from a private source are splendid, equalling bouquet *Dahlias*, those from purchased seed being poor in comparison. A very long line of *Anemone japonica* along the southern boundary of the Park is very beautiful, and another extensive flower garden in a sunken panel is extremely gay with *Calceolarias*, *Perilla*, Pelargoniums *Edward Sutton*, scarlet, and *Mrs. Holden* pink, and *Blue Bell Viola*. Many thousands of plants are employed in this arrangement, and all have done well and flowered freely. Some mixed beds—*Iresine Lindenii* associated with the golden-foliaged Pelargonium *Robert Fish*, and the *Duchess of Teck Pansy*; and *Iresine*, a silver-leaved Pelargonium, and *Verbena venosa*, have a pleasing effect. Thus nearly all styles of flower gardening are represented in this Park, while the shrubs on the south side show what can be done by timely thinning, and allowing each shrub space to form a handsomely formed specimen. Such borders have a far better effect than overcrowded masses of evergreens as are too often seen in public and private gardens. *Kennington Park* is much and deservedly valued by the inhabitants in its locality, and well it may be, for few aristocratic gardens are more gay and in better order than this pleasant enclosure.

FIRM OR LOOSE POTTING.

A FEW remarks on potting may interest some readers of the *Journal*. I have often noticed the difference in the potting of plants from the Continent and those grown in England. The former are potted loosely and in a light soil. Take, for instance, *Azaleas* and *Camellias*. While those from the Continent are potted lightly in decayed matter, in England we generally find *Azaleas* in peat, and *Camellias* in a mixture of peat and loam, both potted firmly. Plants sent here from Belgium or elsewhere appear as vigorous as English plants, though I doubt if they are as suitable for this climate. We are told that firm potting adds to the life of plants. I have heard that the ground in *New Holland* is not nearly so firm as it has been represented to be, yet many can remember how firm the *Barnet* plants were potted in days past, and they were all that could be desired.

When at *Chatsworth* last August I was astounded at the magnificent specimens of *Chrysanthemums*. I inquired what was the treatment and how they were potted. “As firmly as possible,” was the reply. These were the finest specimens of *Chrysanthemums* many others besides myself had seen; some of them were 4 feet high and as much in diameter, though never stopped. With this treatment many growers would not agree, though when seeing a large quantity potted at one of our leading nurseries I asked the reason they were potted so firmly, and I was told it was to keep them short-jointed. I remember asking Mr. Joseph Speed, whom many of your old readers will recollect, the nearest rule he could lay down for potting. His answer was, “According to the size of the roots.” He said, though there are many exceptions, the finer the roots the firmer the potting required—that is to say, plants with very fine roots need very firm potting; those with medium-size roots require medium potting; and those with large roots light potting. I have been told by one who ranks among the first of British gardeners that in ninety cases out of a hundred he pots firmly, and his plants are among some of the finest in the country. Now as this is a subject in which many are interested perhaps some of your practical readers will state their experience.—E. J. SPEED.

EUPATORIUM PURPUREUM.—One of the most distinct and imposing plants in my herbaceous collection at the present time is the above-mentioned Composite. The specimen, or rather clump, is about 6 feet high and equally as much in diameter, and each of the numerous stems terminates in a large corymb or panicle of small purplish-coloured capitula. It occupies a position at the back of a long border, and being situated at a bend is not only prominent but really ornamental, the stems being densely clothed

with leaves to the ground. Any ordinary garden soil seems to suit this species, which thrives admirably with me.—D., *Surrey*.

THE SCOTCH CHAMPION POTATO.

HAD this much-praised Potato proved to be really "disease-proof" I might have retained it as a last resort when other varieties failed, and for cross-breeding, in view of raising seedlings in which we might hope to combine freedom from disease with what I must venture to term the higher qualities of delicacy of flavour, mealiness, whiteness, and full plump eyes. Now we have plenty of varieties that, with the exception of the visionary freedom from disease, are known to possess not only all these good qualities, but the additional ones of haulm of medium vigour, and fitness of the tubers for table during eleven months of the year. With this indisputable fact before me am I to be considered open to rebuke for refusing to continue the culture of a variety in which most of these points of excellence are conspicuous by their absence? No doubt a keen sense of the existence of an urgent necessity for an immediate supply of seed of a Potato calculated to afford an abundant crop prompted the large orders which were given for this variety for Ireland last spring; but that was a matter quite beside the mark, and should have no weight in this discussion. Grown side by side with several other varieties it was compared with them and found wanting, just as White Rock and Redskin Flourball had been long ago.—EDWARD LUCKHURST.



THE NATIONAL FRUIT EXHIBITION, which opens at the Alexandra Palace on the 3rd inst. and continues for four days, is expected to be of considerable magnitude and excellence, as we are informed the entries are numerous. The schedule is a very liberal one, £15, £10, and £6 being offered for "twenty varieties of fruits," and £6, £4, and £2 for "ten varieties of fruit." This is not sufficiently explicit, and it will be well if no misunderstanding arises in these classes. If "kinds" of fruit are meant exhibitors ought to be made aware of it, and then there will be few competitors able to exhibit twenty kinds of fruit of their own growing. If twenty dishes are meant suitable for a dessert table, then it could be stated that black and white Grapes, green and scarlet-fleshed Melons, Queen and any other Pine, red and white Raspberries, and dark and light Plums, would (if so determined) be considered as distinct dishes, for facilitating competition. At present if six varieties of Grapes were included in a collection of twenty varieties of fruit, that collection could not be easily disqualified. Yet this can scarcely be what the managers mean. Greater precision in describing the classes is needed in many schedules, hence we allude to the subject now. The prizes in the Grape classes are good, and other fruits are well provided for in the schedule under notice.

— A CORRESPONDENT informs us that there is now flowering in the garden of Sir Henry Watson Parker, Stawell House, Richmond, a beautiful plant of the far-famed "SCOTCH TROPÆOLUM" (*T. speciosum*). It is quite established, and throws its slender growths covered with flowers for a considerable distance. Any person may see the plant on application to Mr. Bowell, the gardener.

— WE learn that the YORK FLORAL FETE proved a great financial success this year. The profits from the Exhibition in June amounted to the handsome sum of £255, thus increasing the balance to £1500 to the credit of the Committee. The prizes paid to exhibitors amounted to £476, and another very important item in the expenditure was £148 for music. From the profits above mentioned £157 10s. were devoted to the various York charities—an admirable use to make of a surplus. We are glad to find that the Committee are so well supported.

— THE stand of GLADIOLI exhibited by the Rev. H. H. D'Ombraïn at the Crystal Palace Show, which was so generally admired, contained the following varieties—Madame Desportes, Meyerbeer, Baroness Burdett Coutts, Archduchess Marie Christina (to this a first-class certificate was awarded), Adolphe Brongniart, Lady Bridport (Kelway), Rev. H. H. D'Ombraïn (Kelway), very fine; Leandre, Legouv  , De Mirbel, and two seedlings.

— WE are requested to remind intending competitors at the INTERNATIONAL POTATO EXHIBITION that the 14th inst. is the last day that entries can be made for Messrs. Suttons' valuable prizes for eighteen varieties of Potatoes, distinct, nine tubers of each, open to noblemen's and gentlemen's gardeners only. We also learn that Messrs. Sutton have arranged that their prizes shall be awarded by gentlemen's gardeners. All entries should be made to J. A. McKenzie, Esq., Tower Chambers, Moorgate, London, E.C.

— WE have received from Mr. Cuthbertson, Rothesay, a bloom of his new dark self PANSY, DAVID MALCOLM, for which three first-class certificates have been awarded. It is a handsome flower of medium size, perfectly circular, with smooth over-lapping petals of great substance and a small orange eye with a halo of violet. The top petals are velvety black, the lower petal shading to rich purple. We think it deserves its honours. A spike of the new Snowflake Candytuft accompanying it, and which has also been certificated, is remarkable for its size and depth, and the purity of the flowers.

— WE learn that the twenty-fifth annual Exhibition of the ISLE OF THANET FLORAL AND HORTICULTURAL SOCIETY held last week was one of the best and most largely attended of the whole series. The excellent Committee—of whom Mr. G. E. Hannam, J.P., is Chairman; Mr. W. Manser, Vice-Chairman; and Messrs. C. D. Smith, Brook Terrace, Margate, and Mr. H. Austen, jun., Fairfield, St. Peter's, the indefatigable Secretaries—had spared no pains to make every provision for a successful show, offering some 450 prizes for competition in the different classes, and their exertions were admirably seconded by the exhibitors. The various exhibits were, as a whole, up to the average, the foliage plants being especially varied and excellent. Plants in bloom, of various descriptions, were in capital condition; but the best feature of the Show was the cut flowers—Roses, Dahlias, Asters, &c., being in large variety, and generally very fine. Mr. Cannell's collection (not for competition), was particularly noticeable. The fruit was of very varied quality, none of the Grapes being well-shaped, though large and heavy bunches were shown in good numbers. Of Potatoes there was an immense number, and the tubers throughout were very fine. In the plant classes Mr. Friend, Northdown (Mr. Miller, gardener), was remarkably successful. Mr. S. Herepath, Westwood Cottage (Mr. Jarman), Mr. E. F. Davis, St. Peter's Cottage (Mr. Johncock), also secured several prizes. In the cut flower classes Messrs. Kinmont & Kidd, Canterbury, and Mr. J. Bunyard, Ashford, were the premier exhibitors of Dahlias, Gladioli, and Roses; and Messrs. Jarman, Johncock, Clark, and Kimpton were amongst the most successful competitors in the principal classes for fruit.

— THE usual weekly Exhibition at the Alexandra Palace was on Saturday last devoted to DAHLIAS, which were contributed by Mr. C. Turner of Slough. Many hundreds of blooms were staged, representing all the different sections—viz., Show, Fancy, Bouquet, and Bedding varieties, and comprising many handsome novelties. They were arranged on stands down the centre of the great hall, and formed a very bright and satisfactory display.

— ON the rockery at Chiswick that beautiful and interesting plant, AC  NA MICROPHYLLA, is now very attractive with its numerous heads of rosy-crimson spines and diminutive pinnate leaves. It is a species of very dwarf habit, being only a few inches high, and produces its small greenish flowers in close heads.

The calyx is furnished with spines each of an inch or more in length, and it is to the rich colour of these that the plant owes its chief attractions. The species is admirably adapted for a low position on a rockery, succeeding well in a compost of peat and loam, and is quite hardy. It is seen in some collections under the name of *A. novæ-zealandiæ*, a term that is by no means distinctive, as several species are also found in New Zealand, so that the name by which it is designated in Sir Joseph Hooker's "Flora of New Zealand,"—viz., *A. microphylla*, is much more appropriate.

— MR. W. ROBERTS writes as follows on the WEATHER AND THE CROPS IN CORNWALL—"We are having beautiful weather here at present, and things are looking well. Apples and Pears are short, but some other fruits are looking as well or better than they have for a long time past. Of Wheat, Oats, and Barley there is an abundant crop. Peaches are quite a failure."

— WE are requested to state that the *employés*—Nurseries v. Seed Stores—of Messrs. JAMES CARTER & CO. met in a cricket match at Forest Hill on Saturday last, the result of the contest being to the advantage of the former. A very agreeable evening was afterwards spent in the neighbourhood by a hundred or more of Messrs. Carters' assistants.

— WE have received from Messrs. Edward Webb & Sons, Wordsley, Stourbridge, some blooms of ORANGE AFRICAN MARGOLDS grown in their trial grounds at the Kinver Seed Farms. The blooms are not large, but of excellent form, very compact, and rich in colour. They represent a good strain.

— A VERY fine hardy aquatic plant is *SAGITTARIA SAGITTFOLIA FLORE-PLENO*, which bears its large double pure white flowers in whorls on a scape 2 or more feet in height. The plant succeeds very well in a loamy soil, either in a pot plunged beneath the surface of the water in a shallow tank or planted out in a similar position. The variety is much more attractive than the well-known wild form, the flowers being very regular in outline and rather more than an inch in diameter.

— WE recently noticed in a small suburban garden a very tasteful combination of *TROPÆOLUM PEREGRINUM* AND SWEET PEAS. These were trained to a number of stakes at intervals of about a yard, so as to form a series of compact floral pillars; the bright yellow flowers of the *Tropæolum*, and the purple, crimson, and white blooms of the *Lathyrus* intermingled, producing a charming effect.

— A CORRESPONDENT obligingly sent us a report, which arrived too late for insertion last week, of the WHICKHAM FLORAL SOCIETY'S SHOW. The Exhibition was held in the rectory grounds at that town, by the permission of the Rev. H. B. Carr. Plants, flowers, fruit, and vegetables were well shown by Messrs. E. Adams, Swalwell; T. Battensby, Axwell Park; J. Lawson, Whickham; T. Lambert, W. Spoor; R. Gardner, Dunston; G. Smith, J. G. Ismay, W. Mowbray, J. Caulthorn, and T. Harrison. A variety of amusements was provided, and the Exhibition was well attended by visitors, the receipts covering all expenses and leaving a balance to the credit of the Society. All the arrangements appear to have been satisfactory and creditable to the Secretaries, Messrs. R. Burns and Thomas Lambert.

— A CORRESPONDENT of a daily contemporary writes:—"During my entire journey from TEHERAN, PERSIA, TO SHAHR-ROOD I have not seen a single Orange, Olive, or Palm tree. The Pomegranate and Fig and black and white Mulberry flourish luxuriantly. In all reason it is certainly hot enough for Olives; and one would imagine that a people so fond of putting greasy matter into their pilaff as the Persians would have made some effort to secure a supply of oil. The absence of the Orange, too, astonishes me. One sees it growing and ripening thoroughly in far more northerly latitudes. As for the Palm, as a proof that it

would grow here, there is one at present in the gardens of a deserted palace on the Caspian shore, which is said to date from the time of Shah Abbas the Great. There is a tradition, too, that the ground between Asterabad and the Atterek was once one immense Palm grove. Yet this tree of the East *par excellence*, and which plays so important a part in the existence of many oriental nations, is here nowhere to be seen. The figure of the camel with his stalking gait and outstretched swaying neck seems out of place without a Palm tree in the background."

— MESSRS. JONES & SON state that the prizes for Phloxes were not awarded exactly as represented in our report of the Shrewsbury Show, but that they received the premier prize for those flowers.

RED SPIDER IN VINERIES.

SOME remarks have been published relative to this pest, and modes of prevention. One writer neither finds it necessary to syringe his Vines nor damp the vineries; another finds it requisite to employ more or less moisture in the houses. The differences can only be reconciled by locality. I have lived in the west of England and rarely saw red spider, but I am now in a "red spider district." In the former locality I could, so far as relates to atmospheric moisture, safely leave that question pretty well to Nature, but I cannot do so now.

I have now a rather striking proof of the value of damping the paths and walls of vineries occasionally with guano water, in keeping the pest at bay. The late dry and hot weather has caused red spider to increase rapidly outdoors. Kidney Beans are covered with it, and Vines on walls are attacked. Under glass I have not seen one insect, but through a broken square near the top of the roof of a vinery a lateral has found its way, and the young foliage of this lateral is furnishing food for numbers of the insect. This appears to me tolerably conclusive proof that, in my case at least, the moisture employed in the house has been beneficial, and the circumstance may be worth mentioning in the Journal, to which so many gardeners and amateurs turn for plain practical information.—MID-SURREY.

AUSTRALIAN FOREST TREES.

A TOWERING giant indeed is the *Wellingtonia* of California. But the Gum Tree of Australia—mounting over 400 feet, able if placed beside St. Paul's Cathedral to throw a shadow over it, and having timber enough to construct a big ship out of a single stem—is the vegetable monarch of earth. Few things more strike the young Gum-sucker on a visit to the land of his forefathers as the diminutive size of our forest trees. He smiles when he hears praises of mighty Oaks. The wonder of the Kangaroo country is not confined to the size of its timber, but extends to the variety of species and the economical uses to which they could be devoted.

The first tree brought into requisition by the early Sydney settlers was a species of Palm, the stem of which was easily used in building. The curled top served for Cabbage, giving the plant the name of Cabbage Palm, while the fibre made the celebrated Cabbage tree hats of Bushmen. In Adelaide the Reed beds supplied the first colonists with framework for dwellings. In Melbourne the Stringybark gave a covering for roofs and slabs for hut sides. As progress went on Pine forests and Cedar belts were invaded for more convenient and valuable woods. The furniture makers, not content with these, sought more rare and beautiful material in Australian shades. Coopers and veneerers, wheelwrights and gunmakers, carpenters and shipwrights, tanners and dyers, with other tradesmen looked for special timbers. The chemist had his objects of search, and the druggist added precious medicines from colonial forests.

Queensland is favoured even in favoured Australia with a variety of valuable woods. In a work on the "Resources of Queensland" it is said that "The most useful trees for building purposes are the Stringybark, the Gums, Cedars, Pines, Cypress Pine, Kauri Pine, Red Mahogany, Yellow-wood, Citron-scented Gum, Ash, Beech, Brigalow, Ironbark, Box, Blackbutt, Bloodred, &c. Those for veneering are Forest Oak or Beefwood, Red Cedar, Sweet Plum, Satinwood, Sandalwood, and Ebony. For staves, Silky Oak, Tulipwood, Stavewood, and Boyum-boyum are used; for flooring, Stringybark and White Pine; for wheelwright's work, Sour Plum, Blue Gum, and Apple tree; for turnery, Scrub Rosewood; for gunstocks, a species of Acacia; for dyeing, Cockspur Thorn; for shipbuilding, Gums and White Mangrove; for bark-tanning, several kinds of Wattle, Ironwood, and Mangrove; for hoops,

Hoopwood; for medicinal bark, Crab Tree, Fever Tree, and Cascarilla; for cabinetwork, Yellow-wood, Queensland Nut, native Lime, Tulipwood, Broad-leaved Cherry tree, Scrub Lignum Vitæ, Weeping Myall, Ironwood, and Mountain Cherry. But the Apple, Cherry, Plum, Beech, and Oak are misleading names, not being like the English trees.

The Eucalypts, including the varieties of Gum, are valuable for more than timber. As anti-miasmatics the Gum products are most important. The great secret of the healthiness of Australia, even of the tropical portions of Queensland, is the exhalation from the forest. The aroma is not more pleasant than it is fever-easing. The great febrifugal property of the Gum Tree family is supposed to lie in the eucalyptin, which is yellow in colour, without smell, but having a bitter taste. The leaves yield that substance in addition to fruit sugar and several distinct acids useful in the arts. The medicinal kino is obtained from the resin, though the kino differs according to the species. Gum leaves have been used there for the extraction of illuminating gas. From dried Red Gum bark $2\frac{1}{2}$ per cent. of kino tannin has been obtained, and $16\frac{1}{2}$ of kino red. The double oxide of hydrogen, got from Grey Gum, is a valuable antiseptic for hygienic use.

The Queensland Cedar is red, white, or pencil, prevailing in scrubs near the sea. The Moreton Bay Pine rises 200 feet. The Moreton Bay Fig throws down roots from the branches after the Banyan character. Some Figs are 40 feet round, having great wall-like abutments of the root aboveground. The Beech has a very hard wood. The Leichhardt tree is soft, but takes a good polish. The Kauri Pine is fine-grained. The Cypress is fragrant and useful. The Yellow-wood takes a capital polish, as does the Satinwood. The Chestnut has a dark walnut-like wood and magnificent foliage. The Silky Oak (a Grevillea) is admired by cabinet-workers and coopers. The mahogany of Rockhampton is hard and tough, red in colour, with a soft bark used for illuminating purposes. The Myall is a violet-scented Acacia, the wood of which is extensively used for tobacco pipes.—J. B.

DRAINAGE AND CULTIVATION OF THE SOIL.

No. 3.

ASSUMING the drains which have been previously referred to are all quite clear, we have made the first step on the road to success. The next important point is the cultivation of the soil. As the crops are cleared off the ground it should be trenched. Great care is necessary in the execution of this work. The nature of the soil and the depth to which it has previously been worked must be studied. If this is neglected a grievous error is soon committed, and instead of improving the soil it would, if trenched injudiciously, be in a far worse condition than before.

The proper way to set about the work is to line off a portion from 2 to 3 feet wide of the narrow end of the piece to be trenched, and wheel the soil from this to the end at which the work is to terminate. The depth of the first trench must be regulated according to the nature of the subsoil; if clayey, only a small quantity must be brought near the surface at present, but the bottom must be well dug up and some good strong manure and lime, if at command, well incorporated with it. Then mark off the next trench and place the top soil of this on the bottom of the first, adding more lime and manure as the work proceeds; but the dung in this case should be in a more decomposed state than that placed in the bottom of the trench, for the reason that it will be used by the next crop planted on it. This being done early in autumn or winter the surface soil should be left as rough as possible, so that frosts may act freely upon it, which will create a great change in any clayey portions that come within its reach. The winter's frost having acted thus beneficially on the soil, and with the addition of charred rubbish, this portion will be capable of producing first-class vegetables next season. After two seasons the soil broken up at the bottom of the trench will be in a fit condition to be brought to the surface and be treated as above directed; but the bottom should again be dug up, lime and manure being added as before. By persevering in this matter for a few years an unfertile soil may be changed into a most productive garden. In the case of light soils, instead of mixing lime with them the addition of a little clay broken up rather finely would be most beneficial. In the case of very shallow soils, and where it is impossible to dig to any great depth, the only means that can be adopted is to cart or wheel any spare soil and manure on to the land and double-dig the ground. I have seen sifted coal ashes used as a means of rendering heavy soils of a more friable nature. This certainly makes the soil work more freely, but as I find no nutritive properties in it I would not recommend its use. Again, old tan has been employed for the above purpose, but it would do far more good on a meadow.

Having thus secured good drainage, and carried out the first year's trenching in a proper manner, we are prepared either for a wet or a dry season. For instance, in a wet season the drains are ready to take away superfluous moisture, and at the same time a current of air is passing through them, thereby keeping the soil sweet. In a very dry season the whole garden could not well be supplied artificially with water. Here, then, we have the advantage of the trenching, for if the roots of the plants cannot find sufficient for their requirements near the surface they will penetrate the earth until they find what they need.

I intend in another issue to pass a few remarks on the preparation of manure, and of creating the rubbish heap into one of the most valuable of manures for the gardener.—ROBT. D. LONG.

IRISES.—No. 11.

TURNING now to the last of the Apogon groups we have three or four handsome and interesting species that can scarcely be rivalled. The first and most important of these is the one represented in the accompanying engraving—viz., *I. Kämpferi* or *I. lævigata*, the latter being the name accepted by Mr. Baker and other botanists on the grounds of priority, but by the former it is best known in gardens. This exceptionally handsome Iris is a native of Siberia and Japan, and in the last-named country it has been cultivated for many years. It is remarkable that while the Europeans have been occupied in increasing the forms of the "English" and "Spanish" Irises, the Japanese appear to have given equal attention to *I. Kämpferi*, and they now possess a large number of magnificent varieties of which many have been introduced to this country during recent years. The graphic description of the Iris gardens at Hori Kiri, Japan, which appeared in the Journal for March 20th, 1879, was especially interesting, and I cannot forbear quoting the following passage which has special reference to the Irises:—"At last we arrive at the gardens, and then we obtained a full view of Iris in all her virgin glory, her head bright with rainbow hues as in classic legend of old. I had expected to see a grand sight, but I was completely astounded with that which now met my eyes. Thousands and thousands of plants are arranged in sunken beds flooded during the summer months with pure fresh water, and cut out with due regard to effect with grassy raised paths between, and hedged in by grass-clad knolls. Of course gorgeous bedding-out is no novelty to an Englishman who has seen the London parks, but this sight in early June was so thoroughly unique, so absolutely astounding, that I could only look on in wonder and amazement. Semi-double Irids there are here in abundance, some looking more like immense double Petunias impaled on long stalks than anything else, and many others having six immense outer petals, forming an almost perfect circle with an inner row beautifully reticulated and shaded with a great variety of colour from light rose and lavender to the deepest crimson and cobalt." From the beautiful varieties of this handsome species now in cultivation we can readily imagine what a grand effect would be produced by massing the plants as described above.

The typical form represented in the engraving has been dignified as "the finest of the genus" by several good authorities, and it undoubtedly has just claim to that honour. The figure fairly indicates the character of the flower, but the falls are occasionally more horizontally placed. They are of a deep rich purple hue, marked and relieved by a streak of gold at the upper portion, while the standards have a tinge of blue. Such is the type which, handsome though it be, has been far surpassed by the grand varieties introduced within the last seven or eight years. Messrs. E. G. Henderson & Son, Pine Apple Nurseries, Maida Vale, exhibited the first variety shown in this country—viz., the one named Edward George Henderson, which was submitted to the Floral Committee of the Royal Horticultural Society in July, 1874. It had large regular flowers, the standards and falls being nearly of equal size and spreading horizontally, of a deep purple tint marked with gold. It attracted considerable attention, and a first-class certificate was awarded for it by the Committee. Since then numerous varieties have been sent out by Messrs. Ware, Barr & Sugden, Bull, and Veitch, and those recently exhibited by the last-named firm at Kensington would very favourably compare with others previously in commerce. There is now a great diversity of colours from the purest white to the richest blue and purple tints imaginable, and this combined with the regularity of form and great size of the blooms render the progeny of *Iris Kämpferi* unsurpassed in its family. They have been frequently and not inaptly compared to Clematis flowers, to which in the great size and glowing tints of the perianth division they certainly bear some resemblance. It is difficult to select a few from so many of sterling merit, but the following are

some of the best :—Alexander von Humboldt, very large white, yellow-streaked flowers ; Fairy, lilac-purple ; Louis Van Houtte, flowers of great size, bright orange colour ; Lemoinei, pinkish tint, veined with rosy purple ; Frank Miles, fine rich purple, with a yellow blotch ; Dr. Hogg, deep velvety crimson ; Duchess of Edinburgh, fine claret purple-shaded flowers ; and lastly the varieties Crimson King and Magnificence, for which Messrs.

Veitch obtained first-class certificates at Kensington in July of the present year. There are many equally beautiful, but those enumerated indicate the range of colour in the flowers, and include some of the so-called double and single forms—namely, those in which the standards resemble the falls in size and shape, and those with falls as in the typical species.

With regard to the culture of this section of Irises, some growers



Fig. 47.—*IRIS KEMPFERI* (*I. LEVIGATA*.)

appear to have encountered many difficulties, frequently losing their plants in the winter. However that may be in the northern parts of the kingdom, I think there is little danger of it occurring in the south if ordinary care be exercised. A well-drained moderately sheltered border is necessary, and a soil of peat with a small proportion of loam I have found to suit them admirably, not allowing them to suffer from insufficient water when growing

and flowering, or from stagnant moisture in the dull season of the year. With such little attentions to their peculiarities they are quite as easy of cultivation as many other species.—L. C.

THE WESTERN DISTRICT COTTAGE GARDENING SOCIETY.—The annual Exhibition of this old-established (since 1837) Society was held in a spacious marquee in the grounds of T. S. Bolitho,

Esq., at Penalvern, near Penzance, on Friday last, August 27th. It was the finest the Society ever held, and was perhaps without exception the best that has been held in Cornwall this year. Coleuses were well exhibited by Major Carew, who obtained first prize. Begonias were also well represented. For fine-foliage plants the chief exhibitors were Major Carew and R. F. Bolitho, Esq. (Mr. R. Wakely). Calceolarias were shown by E. Bolitho, Esq. (Mr. G. Maddern) and T. S. Bolitho, Esq. (Mr. Westcott); Balsams by Major Carew; Dahlias by T. S. Bolitho, Esq.; and Fuchsias by Major Carew and A. H. Michell, Esq. (Mr. Branin). The Caladiums were magnificent. Those exhibitors enumerated above were the chief prizetakers in the other plant classes, which were fairly represented. The chief exhibit of Pelargoniums was from Mr. C. Thomas, who has one of the best collections of Pelargoniums in the county. From E. Bolitho, Esq., Trewidden, came the largest and handsomest *Adiantum Capillus-Veneris* var. *cornubiense* in Cornwall: it was nearly 3 feet in diameter. Mr. Henry Hodge, St. Austell, contributed a good display of Gladioli spikes and cut Roses. Mr. Hender, Plymouth, exhibited some of his magnificent double and seedling Petunias and nearly a dozen varieties of Abutilons, also a truss of the new Fuchsia Edelweiss, which appears to be very good. Mr. George Fox had a stand of Dianthus and Pelargoniums. Mr. J. G. Mitchinson's stand was decorated with Gladioli, Roses, Marigolds, Asters, Dahlias. The products of the cottagers were without exception remarkably good, especially the vegetables.—W. ROBERTS, *Penzance*.

WASPS.

CAN anyone account for the extraordinary number of wasps this year? The two last years were so wet and unfavourable for them that it might have been expected that none would have been left. About this neighbourhood nearly all the bees have died, yet the wasps are more abundant than ever. I have tried many kinds of baits and traps: that described in last week's Journal is an old one, but the most successful I have found is the following—Take one ounce of quassia chips, one pint of beer, and one quart of water; boil these together, and sweeten with treacle or sugar. Place this mixture in broken jugs, mugs, or tumblers. Place the jugs near the haunts of the wasps, and go round every morning with a colander to drain off the insects, which will be found in the vessels in great numbers. Though my garden is a very small one, I have for the last two or three weeks taken out of my traps daily above half a pint of wasps, and they still abound.—G. O. S.

THE POTATO DISEASE.

IN my opinion the writer on this subject at page 194 is further astray in his assertions than he was before, and that was far enough, viewed from a practical standpoint. It is no great argument in favour of one who professes to be able to prevent or greatly mitigate the Potato disease that he has to substantiate his opinions by quotations from the *Times*. Practical cultivators of crops make the daily papers their last means of gaining reliable information on such matters; and the article quoted is no exception to the general rule, as it is impossible to conceive an assertion with less foundation than the following—"The ordinary gardener has gone on from year to year planting the same sort in the same plot of ground," &c. Now I am sure that ninety-nine gardeners out of every hundred will bear me out that the very opposite of this is the case annually. Gardeners now-a-days try more varieties of Potatoes than ever, and take greater care in growing them; and the extensive and excellent way in which the very newest varieties are grown and shown all over the country are matter-of-fact contradictions of the observations of the *Times* and your correspondent.

As for the same-plot-of-ground theory, there are numerous farmers on this estate who have grown Potatoes for the last thirty years and never have the crop on the same ground twice, and the disease in such seasons as the past and present is just as bad with them as others. Your correspondent is also wrong in assuming that I advise a "folded hand" policy, as the very reverse is the case; and I would say all praise is due to those who prevent or lessen such a terrible disease as that to which the Potato is liable; but a cultivator must prove himself thoroughly worthy of meriting that praise before it is accorded.

I shall not hesitate to express my disapproval of the writings of those who are unable to thoroughly verify their words by practice under long and varied circumstances. Let anyone consider the state of the Potato crop in any county in England, Ireland, or Scotland during the past and present season and say if my remarks are unreasonable.—A KITCHEN GARDENER.

THE author of the assertion that "about one-half of the losses

by the disease arises from the want of knowledge and apathy on the part of the growers," endeavours on page 194 to support his statement by a curious extract from a newspaper. There is a noticeable similarity of ideas expressed in the newspaper report and the paragraph preceding it. Our author says "we have been following a waiting policy for thirty-five years;" the report says "there is no matter of equal importance on which there has been less inquiry, less experiment, and less application of intellect."

Who, I ask, has been following a waiting policy? If the "we" simply means the writer of it I have nothing more to say; but if it applies to gardeners and cultivators generally, then I reply that there have been more Potatoes raised from seed during the last half of the period named, more varieties imported from abroad, more experiments made in preparing ground, trying manures, selecting and doctoring seed in endeavours to resist the disease, than during any other fifty years that your correspondent can name in the history of the Potato. Is this a "waiting policy?" Then as to the non-application of intellect. What is the meaning of the researches of professors at home and abroad—men of admitted eminence and great industry? What is the meaning of the extraordinarily voluminous writings on the subject that have been published in almost every newspaper in the land within the past twenty years? What is the meaning, too, of the bewildering number of experiments that have been made by men of science, professional gardeners, educated farmers, and intelligent cottagers during the period named in this and other countries? Does all this represent apathy and intellectual inactivity? To the minds of most people it represents precisely the reverse; and I may add that to this very intellectual activity and the working—not "waiting"—policy of others the author is indebted for the greater part of the interesting book he has published, about nine tenths of which is devoted to a discussion and narration of what others have written and done, his own practice being recorded on the remaining one-tenth portion of the volume. I fail, therefore, to see the foundation for the above statements—the apathetic and ignorant theory that is now advanced.

I suspect the Potato disease during the past thirty-five years has been of far more importance to me, personally, than it has been to your correspondent, and I should not be surprised if my experiments have not been more numerous and conducted on a more extensive scale than has his. I have further read all, or nearly all, that has been written on the subject in at least two horticultural and two agricultural periodicals, and have tried everything within my power that has been recommended for combating the malady. Ten years ago I felt well qualified to write a book on the subject, but subsequent experience has taken the conceit out of me. I have learnt how to proceed best in my own case; but all my notions, plans, and recommendations that I once thought so valuable for producing late and sound crops have in other seasons and districts been of no avail, and I am not ashamed to say that the only certain conclusion that I have arrived at is this: That when the summers are hot and dry we have no disease, and when they are excessively wet the crops that are out are practically ruined.

I have raised seedling Potatoes, and always selected the very best tubers for seed, the same practice having been adopted with reputed "disease-proof" varieties to prevent degeneration, yet my notions have been exploded and stock lost by the devastating murrain. I do not believe in "disease-proof" varieties, having seen too many fail, and I do not agree in the wisdom of writers in the general press advising the people to raise new stocks from seed. If small growers attempt that practice they will lose more money than they lose now. That is work for agricultural societies with large farms at their disposal and Government grants to carry out the experiments. Such grants are made for growing flowers in the London parks for the people to look at, and I for one think they might with equal reason be made in the endeavour to produce what private individuals have hitherto failed to do—an improved race of Potatoes that will resist the disease. The object to aim at is to raise varieties that will crop heavily and be as early as the Ash-leaves, and at the same time continue of good quality throughout the winter and spring. A dwarf Champion and Magnum Bonum would no doubt be very welcome, but we are travelling in a wrong direction by raising Potatoes that are exhausting the ground for three months after the early crops are dug. This suggestion may betray ignorance, but scarcely in alliance with apathy.

After long experience and close attention to the subject, embracing ten times more experiments than are referred to in "The Potato Disease and How to Prevent It," I have arrived at a totally different conclusion from the author on one important practical point. He advises that the tubers be planted 5 inches deep in early spring. I find that placing them on the surface and banking the soil over them is much better practice, as if the

summer proves dry the plants have a greater depth of good soil to root in and obtain support, while if it proves wet the excessive moisture can drain away to the certain advantage of the crop. I perceive that Mr. Ingram of Belvoir, who gave useful evidence before the Potato Disease Committee at the House of Commons, is also of this opinion. Planting 5 inches deep in March is only safe in light soils; on heavy land it as often fails as succeeds to produce the desired object—a full and sound crop. I do not wish it to be understood that I speak disapprovingly generally of the little volume I have mentioned; on the contrary, it is cheap at the price advertised in the Journal, and those who wish to possess a concise history of the Potato disease cannot do better than do as I have done, purchase the book.—A LINCOLNSHIRE POTATO GROWER.

CHAPTERS ON INSECTS FOR GARDENERS.—No. 10. NEW SERIES.

THOSE insects that have been already mentioned belonging to the Neuropterous order (sometimes called the Dragon-fly order, though it contains species which vary considerably from the insects popularly taken as its representatives), in their larval and pupal stages exist beneath the surface of the water, and are active from the moment they quit the eggshell. In the second division of the Neuroptera, to which is given the formidable-looking Latin name of *Subneeromorphotica*, the pupa is quiescent, and all save one genus have larva that are terrestrial and not aquatic. But before examining these we must briefly notice the curious little insects in the genus *Psocus*, which appear to stand midway between the two divisions of the Neuroptera. The head in the perfect insect is large, furnished with long antennæ and prominent eyes; the body has a squat look about it, and the wings are sometimes absent as in *P. pulsatoria*, the species that has received the unpleasant appellation of the Book Louse. It by no means, however, confines itself to books, but frequents bundles of old papers, and also dried collections of plants. The name *pulsatoria* was given because the insect was thought to produce a ticking sound at regular intervals like the death watch, but this is now believed to be a mistake. Dr. Hagen, in the "Entomologists' Annual," some years since endeavoured to vindicate the character of the species, asserting that it did very trifling harm to the books or other articles amongst which it is found. In spite of the Doctor's ingenious explanations we must think the circumstances are rather suspicious; the damage, whatever it may be, is done by the larva, a pale worm-like creature that glides rapidly off when an attempt is made to secure it. To preserve herbaria from the possible attacks of this *Psocus* all interstices should be closed against the entrance of the fly, and doubtless the odour of turpentine or any powerful aromatic oil would be a deterrent. Other species in this genus are found about hollows in tree trunks, old palings, and walls, where they probably feed either upon decaying wood or small lichens.

Proceeding to the lacewing flies we find a group of small insects, not without a resemblance to the dragon flies, but their wings, large though they are, seem to be of little service to the insects, their flight being sluggish. Hence they must form an easy prey to birds. Some are perhaps carried to their nests by the insect-eating species; but the strong and offensive odour that many of these flies emit when they are touched may serve as a protection against such attacks. The eye is an organ of remarkable brilliancy in the family, and in the dusk of the evening its golden or ruby hue renders one of these insects very noticeable. The common lacewing fly, *Hemirobius pirla*, is one of the important foes of aphides, though it can scarcely rival that of the *Syrphus* in its slaughter of these garden pests, if about equal in merit to the larva of the ladybirds (*Coccinellæ*). Reaumur, we find, called them Plant-lice lions, and he fancied they also preyed upon small caterpillars, a fact that we have not observed as yet. The eggs of this and other species of *Hemirobius* are placed upon footstalks resembling hairs, and arranged in clusters of from six to ten. Mr. A. J. Butler has watched the females in the critical operation of depositing these eggs. They first place upon the leaf a drop of glutinous matter, which is drawn up by the abdomen into a thread. After waiting a short time for this to dry the females lay an egg upon the point, securing it there by a drop of gum. The larva of this species is admirably fitted for its mode of life, having powerful mandibles and a muscular neck. It is the habit of *H. pirla*, and of its relatives that are also feeders upon aphides, merely to suck the juices of their victims, leaving a track of shrivelled carcasses as tokens of work accomplished. Should two of them meet they usually engage in a combat, the victor eating the vanquished at the conclusion. Many of these larvæ attain their full size in about a fortnight, spinning their compact silken cocoons on leaves or twigs. We have nearly fifty British species of the *Hemirobiidæ*.

The *Panorpidæ* form a small family, but although the species are few the insects are particularly conspicuous, being frequently seen in gardens, and also by the roadsides upon hedges or banks. These may claim to be ranked amongst useful insects from their doings both as larvæ and as flies. The popular name of "Scorpion Flies" applied to them has arisen from the conformation of the abdomen, the joints of which resemble those of a scorpion. The legs are of singular appearance when they are examined with a moderately strong magnifier, being ranged with rows of toothed spines and adorned also with spurs, while the comb-like claws at the tips remind us of a conformation noticeable amongst some of the spiders. In *Panorpus communis*, a familiar example, there is a forceps or pincers at the tail of the male insect; the female has a pliable ovipositor or egg-placer, by means of which the eggs are laid beneath the earth. The head, which has been said to be horse-like in its shape, is armed with a beak, by which the scorpion fly is able to pierce the bodies of the insects upon which it preys. In some seasons these flies help to reduce the numbers of caterpillars, which are naturally unable to escape from winged and agile insect enemies. The old naturalist Aristotle has described some flies with spotted wings that he observed upon the bushes in summer, and which seem to be the *Panorpidæ*; but he had not made acquaintance with the larvæ or grubs. These,



Fig. 48.—*Raphidia ophiopsis*: larva, pupa, and imago.

it has lately been discovered, live underground, feeding upon animal or vegetable substances that are undergoing decay. It is possible, however, that they occasionally attack the healthy rootlets of plants, though not to such an extent as to be productive of marked injury to vegetation; otherwise, the proceedings of the larvæ of scorpion flies must be called beneficial, putting them amongst the scavengers of insect parentage.

A curious insect allied to the *Panorpidæ*, but which stands alone, so to speak, is *Boreus hyemalis*. It is not much beyond the size of a large aphid with long legs, and wings only partially developed in the male, resembling a tiny hump on the back, therefore useless for flight. The female has no wings. From its habit of emerging during the depth of winter it is seldom noticed even by entomologists.

We quit the Neuropterous order with a brief mention of the last group that has to be considered, the snake flies. We possess five species in Britain that belong to the genus *Raphidia*, so called from a Greek word meaning a "needle," and which was suggested by the peculiar narrowing of the top of the thorax into a long neck which supports a broad flattened head. The wings of moderate size are strongly veined, but from the movements of one of these flies it may be thought that it is rather by dexterity than by speed that those insects are captured upon which it feeds. The snake flies are partial to the vicinity of ponds and ditches, though the larvæ are not aquatic; the few that have been detected were found under the bark of trees leading a predatory life. Our largest species is *R. ophiopsis*, its appellation implying that it is not only snake-like as to its neck but "snake-eyed" also. The larvæ is slim, and shows a snake-like resemblance as well as the fly it produces; for Prof. Westwood having captured one, observed that it crept along slowly, though when it moved "it gave the body violent jerks from side to side somewhat like those of a serpent." In size the snake flies approach the lacewing flies. The females have a long double-bladed ovipositor.—C.

HANDSWORTH FLOWER SHOW.

ON Wednesday last, the 25th ult., the inhabitants of Handsworth, near Sheffield, were very busy, it being the day set apart for holding the annual Exhibition of plants, flowers, fruits, and vegetables. It was the seventeenth meeting, and I hear the Show fully maintained its reputation, being quite equal on the whole to preceding years. Some classes were deficient in the number of competitors, such as those for Grapes, Peaches, and Nectarines, and other fruits, principally in the open class, while others were well filled, and the various prizes offered keenly contested. Owing to the season, which has not been a good one for fruit-growing here, the

outdoor crops are poor in most cases, and the quality not in many instances first-rate, while fruit-growing under glass has also been influenced by the season. The Show proper was held in a field adjoining the village, and was made up in three large tents occupying three sides of a square, which to those who, like myself, had not before seen Handsworth Show, would think by far too much space had been provided; but such was not the case, for with one exception (the tent for the open class), they were well filled. The classes were divided into four different heads—viz., for cottagers cultivating not more than 1 rood of land; amateurs cultivating not more than 2 roods, such not to be growers for sale; third, professional gardeners and growers for sale; the fourth open to all England. The ample space allowed all these classes to be kept distinct, which was a great advantage to the visitors. Besides the above great interest was centred in the various groups or collections kindly sent for show and not for competition; these were contributed mostly by growers in the neighbourhood, and added a grand feature to the Show. The principal of these were Mr. B. Crossland of the Richmond Nurseries, Handsworth, who exhibited a fine collection of stove and greenhouse plants, not the huge specimens such as are sometimes seen, but fair size plants of *Alocasias*, *Dipladenias*, *Caladiums*, *Cyanophyllums*, *Orchids*, *Aralias*, *Clerodendrons*, &c., as well as stove Ferns and dinner-table plants, all vigorous, healthy, and well grown. Mr. House of Peterborough also exhibited, while Messrs. Le Tall & Davis, seedsmen and floral decorators, Exchange Street, Sheffield, arranged a group of decorative plants as well as Grapes in three varieties, bouquets of the choicest flowers, &c.; their plants included Palms, Ferns, Fuchsias, *Dracenas*, *Liliums*, *Coleuses*, *Lycopods*, and other useful plants for decorative purposes; the free blooming of the flowering plants and the bright colours of the foliage plants attracted considerable attention. The famous nurseries of Fisher, Son, & Sibray have always contributed largely to this Show, but from some cause were not represented this time; the nurseries, however, were thrown open for inspection.

In the open classes Mr. T. Shelly, gardener to Mrs. Hobson, Burnt Stones, took the first prize for stove and greenhouse plants, six exotic Ferns, six British Ferns, and for six *Pelargoniums*. Mr. Boston of Bedale was first with twenty-four Dahlias, third with twelve, first with twelve fancy Dahlias, and first with twenty-four Hollyhocks. Mr. W. Slack of Chesterfield came in first with twenty-four Asters and twelve *Gladioli*, and third for twenty-four Dahlias. Mr. Haslam, Chesterfield, was second in both twelves of Show and Fancy Dahlias, second with twenty-four Asters, first hand bouquet, and second for black Grapes. Mr. T. Holland, Whittington, was second for twenty-four Hollyhocks. Mr. J. House, Peterborough, was a good first with a stand of twenty-four Roses, and Mr. C. Storey, Attercliffe, second. Mr. Bowling, Sheffield, third for a collection of fruit, first for two Pines, second with white Grapes, second for Nectarines, and first for a Vine in pot. Mr. Lyon, gardener to Lady Ossington, Ossington Hall, Newark, second for stove and greenhouse plants, second exotic Ferns, first for Peaches, and first for a collection of dinner table plants. These were much admired. Mr. A. Webb, Kilham Hall, Newark, second for *Gladioli*, first for a collection of fruit, and second for table plants; while Mr. Brabbs of Doncaster took first for black Grapes. Mr. Clayton, Grimston Park, Tadcaster, was second with a collection of fruit, first for white Grapes, second for six Peaches, and first for Nectarines. Mr. H. Cook of Woodhouse was placed first for twelve Dahlias, second for twenty-four Dahlias, and third with Fancy varieties. The above list of prizetakers will be sufficient to show that the open classes were good. The prizes in the remaining three divisions were equally well contested, especially in the amateurs' classes, where the vegetables were a strong feature, but the cut flowers with one or two exceptions were not quite up to the required or usual standard.

In the cottagers' division the numerous competitors made an excellent display in every class. I ought not to omit to mention that there were twenty-six donors of special prizes in addition to those offered by the schedule. Another matter to be thought of was the designs for flower gardens of villa residences. There were several of them exhibited, and there is a great amount of credit due to those who design them. In addition the Society offers substantial prizes for the best-managed cottage garden in the village. There are two classes, professional and non-professional gardeners, defined as those who work in a garden and those who are otherwise employed. Both classes were most creditable. So far, then, the Handsworth Show was one of the best I have seen as a local show, and is looked forward to with a great amount of interest by the Sheffielders, for being of easy distance (about four miles) hundreds of people from that busy town go to see it. Financially I hear the Show was a success, as nearly £200 were taken at the gates.—THOMAS RECORD, Sheffield.

THE POTATO CROP IN IRELAND.—I have just arrived in Dublin after a run through Munster and the greater part of Leinster, and after having an opportunity of closely examining the crops in many of the best-conducted gardens, including the Government Model Farm and Garden at Glesnevin, and the unanimous opinion of all cultivators is that the crops are much above the average of the past ten years. The Potato crop is large in quantity and superior in quality. I saw by notes in the Journal before I left Clonmel that Champions were affected by blight in England. I have examined them in several counties, south and

midland, and you will be glad to hear I found none of them diseased in Ireland.—W. J. M.

DRACÆNAS.

OWING to the great multitude of plants serviceable for decorative purposes, both for foliage and floral display, it is sometimes puzzling to know what to cultivate. Limited space has frequently to be taken into consideration, and a question is frequently raised in the mind of the cultivator as to what is best from all stand-points for him to grow or discard. Now, without the slightest hesitation, we are willing to give *Dracenas* a high place amongst the most valuable of decorative plants. Their graceful growth, colour, and form of leaf, well justify such an arrangement. These characters render them beautiful and extremely useful for all kinds of work, whether it be the embellishment of plant houses, special effect in subtropical bedding, and last but not by any means least, the ornamentation of rooms, as table plants, and for numerous and various other purposes. They are fairly enduring in gaslight, lasting some time in good condition.

Having, then, in *Dracenas* a useful class of plants, it is well to secure them in quantity; and be it understood we have not much to remark upon their propagation, which is well known. A few methods are, however, easily described. When a specimen becomes too high it may be shortened to any extent, and rooted at any portion of its length in the following way: Divide a small pot evenly, so each half will meet, enclosing the stem and secure them, having previously cut the stem about half way through with a sharp knife; fill the pot with suitable soil, and roots will soon be produced. The tops may also be rooted freely in a steady bottom heat of 80° or 85° Fahr. Having removed the rooted top there is abundant material below for a batch of young plants. Some growers take the stems, removing the soil from the roots, and lay them in the propagating case and allow them to grow, which they do quickly and freely, when the young shoots are removed and easily rooted, plunged in bottom heat singly or several in pots. This is a very good method and one extensively performed. It is also a good plan to cut the stem and primary roots into short lengths, say an inch long or less, and place them thickly in pots or pans, plunging the latter in brisk bottom heat, when they readily start and soon form fine young plants ready to leave the case. A propagating case is not a necessity for increasing the stock of these plants, as young shoots potted will root freely enough in an ordinary stove temperature, but like most plants they can be increased more quickly and better with case treatment. There is no particular time to be given when they should be propagated—that must be ruled by the requirements. The two essentials for growing them well are heat and moisture; shade is also necessary during sunshine—they do not like bright sunshine. During the spring and summer a temperature of from 75° to 85° with the house well charged with atmospheric moisture is suitable. Copious supplies of water at the roots is also indispensable during such rapid growth. If a house has a hot-water tank in it so much the better, and frequent use of the syringe is conducive to their good in more ways than one. It lessens insect pests if any are present, and keeps the foliage clean.

As to the soil most suited to them, the following I have found the best. Peat is employed sparingly. Good mature fibrous loam well charged with sharp sand is the staple soil; peat is employed to a limited extent; well-decayed manure is also used. I have found Mr. Wills' horn manure most beneficial, having employed it freely. Some growers use a large amount of peat, but I cannot recommend it. Good drainage is essential, and the pots should not be too large. For general purposes 48-pots are sufficient. The following is a selection of the best *Dracenas* in commerce:—

D. amabilis.—A well-tried variety of great merit, producing long lanceolate leaves, which are light green, copiously marbled and streaked with white and rosy-pink, rendering it very effective, as the leaves curve gracefully. Easily grown and largely employed.

D. Baptistii.—A fine-foliaged form, the leaves measuring 2 or 3 feet in length, finely margined and streaked with white and rosy pink, and very spreading. It is a beautiful variety.

D. Barronii.—This is similar but superior to *D. Youngii*, therefore I omit any further mention of the latter. The leaves are oblong, 5 or 6 inches broad, of a dark bronzy green with an irregular edging of deep magenta colour, the young leaves being considerably lighter in colour. The habit is good.

D. Bausei.—A grand variety, very effective, of a dwarf compact habit, producing oblong volute leaves, about 3 or 4 inches broad and very closely overlapping each other, of a dark metallic hue, with crimson margins, the young leaves having very broad bands of a lighter tint; the petioles are also coloured. This variety

is not very plentiful, but it is a grand addition to our ornamental plants.

D. Elizabethæ.—This variety is very handsome. The leaves are sharply curved under each other, copiously produced, and the plants are very compact. The leaves measure about 4 or 5 inches across, dark green, with a narrow crimson edge on the older leaves; the younger with a broad band of rosy pink and white, or creamy white. Of very free growth, and colours early.

D. elegantissima.—An older variety, but very good, being of very close growth. Leaves narrow, gracefully curved, of a dark metallic hue, with the margins crimson; in the young foliage much lighter. Very effective as a decorative plant.

D. Cooperii.—A form largely employed, and extensively grown for the markets. It is a free grower, easily done, and of rich colouring, the foliage when mature being bronzy red margined with crimson; the younger leaves magenta crimson. It differs from *D. terminalis*, and is more tender.

D. Goldiana.—One of Mr. Bull's introductions, very distinct from all other *Dracænas* known in cultivation. It comes from tropical Western Africa. The leaves are closely set on the stems, having a sheathing petiole; the lamina is cordate ovate, with acuminate points, alternately banded with dark green and silver grey upon the upper surface; the under surface is purplish. It is very free-growing, but not so readily propagated.

D. Gladstonei.—This variety is of very hardy constitution, growing freely, and readily increased. It should become very serviceable for general purposes. The leaves are gracefully recurved, 3 or 4 inches broad, of a dark bronzy colour; the younger leaves of a deep crimson colour suffused with salmon rose, rendering it remarkably effective.

D. gracilis.—A narrow-leaved well-known variety, very useful for many purposes. The leaves are densely produced, very narrow, gracefully bent, light green with a dark midrib.

D. Hendersonii.—This is of good habit. Leaves 1 to 2 feet long, 3 to 5 inches broad, light green, marbled and striped with yellow and light pink.

D. ferrea.—This is not so much esteemed as many, but is very effective, especially in a young state; the foliage is very dark, rather rigid. For mixing with other plants it is very effective.

D. Imperator.—A handsome form. The leaves are oblong-ovate, dark green, with dark purple edge; the younger leaves have broad marginal variegations of pink and white, tinted more or less with magenta, the under surface of the leaves deep purple.

D. nigro-rubra.—A variety largely employed for market purposes, and is extremely useful; it is too well known to need description.

D. Nitzschei.—This produces copious broad oblong leaves, sharply recurved, dark green; the younger are variegated with creamy white tinted with rose, while the mature leaves have a narrow margin of crimson, which is continued down to the edges of the petioles. A very distinct and desirable form as a contrast to many others.

D. Regalis.—Similar in habit to the last, very robust; leaves oblong, recurved, deep bronzy green, irregularly margined with bright red, which is also continued to the edges of the leafstalks; the young leaves are broadly edged with creamy white, suffused with pink. Very bold and free-growing.

D. terminalis alba.—A valuable variety; extensively grown for decorative purposes; the leaves are lanceolate, 2 or 3 inches wide, dark green, margined with creamy white, the young leaves almost pure white. It is a splendid variety for mixing with the dark varieties.

D. Salmonæa.—The leaves are sparsely produced, with long stalks and lanceolate narrow blades, the latter of a deep green colour distinctly margined with salmon pink, which is also extended down the edges of the petioles, which render it very different from others.

D. Sidneyi.—A narrow-leaved variety, much esteemed. The footstalks are long, and the laminae are narrow, lanceolate, dark green, with crimson edges; the younger leaves entirely of a rosy-crimson colour. I find it free-growing and useful, as it certainly is very graceful for table decoration.

D. Tellingi.—A very strong-growing variety, and exceedingly free. Leaves oblong, more or less recurved, of a dark bronzy green colour edged with rosy pink, which deepens as they mature. As an effective variety it is in the first rank on account of its broad foliage.

There are a host of others known to growers, but the above selection will give a good display.—T.

TRAINING YOUNG VINES.

WE have frequently noticed what we consider an error in training young Vines at the stage generally termed their first and second fruiting years. The system usually practised of training

young Vines the year they are planted, is to allow them to ramble and make as much wood and foliage as covers the whole roof without crowding. A Vine trained in this way makes extended lateral growths, and the result is the manufacture of a great amount of roots; and the Vine, if cut down, is expected to send up a fruit-bearing rod the second year of greater strength than if the previous season's training had been more restricted. But if the Vine is not cut down, and the extensive lateral growth pruned away, and the main stem shortened back and allowed to fruit the second year, the result in Grapes is never so satisfactory as when the first year the laterals are pinched at the second, or at most the third, leaf or joint. In the former case the buds are formed on the main stem, and produce fruit-bearing breaks the following year, but are never so plump and fine as in the latter, when the growth of the Vine is more concentrated.

The remarks we have just made apply with equal force to the training of permanent Vines in what are termed their first and second fruiting years. The first fruiting year, the common practice is to cut back the previous year's growth, so that the Vine bears over about a third of the length of rafter or roof of the vinery, the other two-thirds of the space being left for the production of growths to bear fruit the following or second year of fruiting. In these cases we have often seen their lateral growths allowed to extend and cover all the roof space, besides a portion of them being trained down the back wall. Under such training we never saw the fruit-bearing growths, nor the fruit on the bottom portion of the Vine, so strong as we like to see them. And when pruning time comes round, they are not so well furnished with buds for producing fruit-bearing breaks the following season.

A very striking illustration of this came under our notice a week ago. A house full of young Vines of great strength, generally had weak fruit-bearing lateral growths about half-way up the roof, and the bunches were nothing to what such Vines under different training ought to produce. The young rods at the upper part of the vinery were allowed to extend their lateral growths in all directions, right and left, and down the back wall. They were, in short, robbing the fruit-bearing lateral growths lower down, and, as a consequence, robbing the bunches too. Nor is this the only evil; for the buds that were to produce fruit-bearing breaks on the top young rods were flat and unsatisfactory, owing to the great lateral growth allowed.

What we consider the better system of training such Vines is just the reverse of that referred to—viz., to let the fruit-bearing growths on the lower part of the Vines make a lateral growth of a joint or two, and let them cover all the space available with growth, and to restrict the lateral growths in the main stem above to, say, two joints, or just as many as will prevent their bursting their main buds. This would secure finer shows of fruit the year following both on the top main stem and from the lateral and lower growths when spurred back at pruning time.

No doubt it has often been noticed, when a Vine is allowed to develop itself in any particular part for a year or two, how in former years it had a tendency to send its strongest growths from that locality. Also, in removing a limb from a vigorous healthy Vine, we have, time after time, had lateral buds forced with great vigour from the locality at which the amputation was made. This, we consider, teaches the desirability of distributing the force of the Vine, when establishing itself for permanent bearing, more equally than is the case when young Vines are allowed to make rambling top growth, while the lower fruit-bearing shoots are being robbed and starved.—(*The Gardener*.)



KITCHEN GARDEN.

Cauliflower.—Seed should be sown at once in an open situation and not too thickly, as the plants are very liable to damp off in the seedling state at this time of year. Attention will be necessary to save the seeds from birds, and the plants from the depredations of slugs, and should mildew appear dust the plants with quicklime. Plants from this sowing must be transferred to handlights or frames, and will afford heads succeeding the late Broccoli. The best varieties for this sowing are Veitch's Early Dwarf Forcing, Early London, and Walcheren.

Lettuce and Endive.—The seed for next season's early supply of Lettuce should be sown in an open situation. Stanstead Park is the best Cabbage, and Black-seeded Brown the best Cos variety for this sowing. As the plants from later summer sowings of Lettuce and Endive become ready plant out good breadths in firm soil to induce a sturdy growth, as Lettuces in autumn have a tendency to become soft, and those grown in firm soil are not so susceptible of injury from wet and frost as those in loose rich soil. Take advantage of sunny days to tie up such as are fit for blanching, and earth up the most forward crops of Celery in favourable weather. Continue to sow Radish and Mustard and Cress seed in warm situations.

Cabbage.—Plants from the July sowing may when ready be placed out where they are to remain, selecting rich soil in a sunny situation, a distance of 18 inches apart every way being ample for the plants. By planting out another batch in a fortnight's time in an open situation a good succession of early Cabbages will be ensured.

HARDY FRUIT GARDEN.

There is still time to plant Strawberries; and if the plants that are well rooted in small pots are turned out now, and well attended to with water if the weather prove dry, they will afford some fine fruit next season. Where it is necessary to defer planting until spring, runners may now be pricked-off in nursery beds. Runners planted some time ago will be making good progress, and should have the secondary runners removed. Older plants should now be cleared of all runners and weeds, so as to admit of light and air to mature the crowns. Continue to attend to stopping and thinning the growth of fruit trees, as, owing to the moisture and scanty crop, they are making much growth, especially bush and pyramid trees, which should now be examined, and the laterals stopped to one bud, so as to check late growth and strengthen the buds for next season. Peaches and Nectarines will require attention in stopping laterals and cutting back gross growths, as for the wood to ripen properly must be well exposed to the sun's influence.

FRUIT HOUSES.

Vines.—Former directions with regard to the starting of late houses having been followed the Grapes will be well advanced, and instead of keeping the Vines excited by sharp firing, as is the case with houses started late in the spring, atmospheric moisture may now be gradually reduced, and well-ripened wood with highly finished fruit will be secured by the application of sufficient artificial heat to keep up a circulation of warm dry air. The Vines will rest before the long damp nights set in, and the bunches will keep satisfactorily in a suitable room, and this will admit of the pruning of the Vines and giving them a long rest. Vines from which the Grapes have been cut must not be neglected, keeping all laterals closely stopped, securing a dry warm atmosphere to ensure the complete maturity of the wood. The old foliage should be retained as long as possible, keeping it free from dust and red spider by an occasional washing with the engine on fine evenings. Where early forcing is contemplated the Vines should be pruned by the middle of September, the houses cleaned, repaired, and painted if necessary; the borders being cleared of the old mulching and loose soil, supplying a dressing of good turfy loam to which a twentieth part of half-inch bones has been added.

Cucumbers.—As the nights are becoming cooler less syringing is needed; it must be done earlier in the afternoon, and the ventilators should be closed earlier, but there will not be any necessity for fire heat unless the night temperature falls below 65°. Much depends upon local circumstances, the size of the house, elevation, and aspect, so that the cultivator must be guided by them, it being impossible to lay down rules generally applicable. Encourage the plants for autumn fruiting, removing the first fruits, also the staminate blossoms and tendrils. A sowing should be made from now to the middle of the month to provide plants that will supply fruit at Christmas. Telegraph is the most reliable variety.

Melons.—The last batch of plants will be making good progress, and should not be stopped until the leaders have advanced two-thirds up the trellis, removing every alternate lateral directly they can be pinched out, maintaining a warm and moist atmosphere until the fruit is setting, when less moisture is needed. The latest plants in frames have set their fruit well; earthing up the roots must be attended

to directly the fruits commence swelling, watering copiously in dry weather, and keeping a strict watch for canker at the collar, and applying quicklime should it appear. Keep the laterals well stopped, shading only to prevent flagging. Gradually withhold water at the roots, and atmospheric moisture from plants ripening their fruit.

FLOWER GARDEN.

The early summer months were not favourable to a development of bloom on Pelargoniums and other flowering plants, and the growth of the tender varieties has been greatly retarded; but the better weather of late has wrought a change, and flower gardens will be in fine condition during the present month. Remove all decayed leaves, faded flowers, and seed pods from plants in beds, and in dry weather supply water copiously. Although there is a slight departure from summer bedding in favour of herbaceous plants, which have been unusually attractive this season, carpet bedding has increased in popular favour, and deservedly, for when well done it is very beautiful. The propagation of bedding plants must now be pushed forward. Cuttings of the common varieties of Pelargoniums may be inserted in boxes of sandy soil; if these be placed in a warm situation the cuttings will root freely. Choicer varieties may be inserted in pots and placed in a frame where they can have protection from heavy rain. A few store pots or pans full of Verbenas, Lobelias, and Heliotropes will be sufficient, as they are freely increased in spring. Cuttings of Pansies and Violas strike freely in a shady border; the cuttings should be taken from the base of the plants.

Herbaceous plants should be examined frequently, removing all dead stems or stalks; others will require staking and tying, such as the late-flowering Asters and Chrysanthemums. Seeds of hardy annuals should now be sown; when surviving the winter they make a fine display in April and May.

PLANT HOUSES.

Pelargoniums.—Cut down the latest-flowered plants, placing them in a pit or frame. Very little water is necessary. These first cut-down plants will be ready for shaking out, as it is not well to let the shoots become much advanced before repotting, or the reduction of the roots will cause many to cease growing. Half the roots may be cut away from old plants that are as large as required. Turfy loam with a sixth of old manure is a suitable compost, adding a sprinkling of sand. They should be potted firmly, and placed in a light house near to the glass, and damped lightly every afternoon, admitting plenty of air.

Mignonette.—Encourage the plants to make strong growth by keeping them near to the glass and shifting as required. A few plants grown well will afford more and finer spikes of bloom than as many dozens badly grown. Plants intended to form standards should be kept to single stems regularly tied up to stakes, and when of the required height they should have to be trained over an umbrella wire stand. Green aphides must be destroyed by syringing with tobacco water or moderate fumigation.

Roses.—Plants in pots that have been well attended during summer should now be placed in an open sunny position to ripen the growth; and if there is any trace of mildew promptly apply flowers of sulphur, as unless this is destroyed it will give much trouble when the trees are under glass. Where potting is necessary it should be done without delay, placing the trees at the back of a wall or fence for a few days. Clematises are valuable for decorative purposes, and should be placed in a sunny situation similar to the Roses, affording water so as not to stop growth all at once, at the same time taking care not to allow the soil to become too wet by heavy rains, or the growth will not ripen well.

Plants of *Anemone japonica alba* lifted before the buds are too much advanced, potted, and placed on a north border for a few days and kept moist, will make fine specimens for conservatory decoration. Dwarf Asters may be taken up from the borders and potted three or four together in a 6-inch pot, and if the soil is well soaked to prevent the plants flagging they will be found very useful for decorative purposes.

Richardias.—Plants that have been retained in pots will be starting into growth and should be potted at once. It is only necessary to

remove the soil not occupied with roots; turfy loam with a fifth of well-decayed manure suits them well, providing good drainage, as copious supplies of water are necessary. Supply weak liquid manure freely, as the spathes are fine in proportion to the vigour of the plants. Those planted out may be lifted and potted at the end of the month, and be placed under cover before frost.

Solanums that have been planted out should now be lifted and potted in 6 or 7-inch pots according to the size of the plants, and as soon as potted they should be placed near a wall or where they will be sheltered until they commence growth. Attend to Tree Carnations for winter flowering, placing them in a position where they will receive all the light possible, so as to keep them dwarf and stout, as upon this depends the production of flowers in quantity. Hydrangea cuttings from plants that have formed the buds if now inserted strike readily in gentle heat, and form much dwarfer specimens than those struck in spring. Take off the cuttings with about three joints and insert in small pots, in which they may be allowed to flower, as plants in 3 and 4-inch pots give fine heads if supplied with liquid manure.

Roman Hyacinths.—Place four or five bulbs in 6-inch pots, or in pans, as close almost as they can be placed to yield flowers for cutting, employing turfy loam with a fifth of well-decayed manure and a little sand, covering the pots with about 6 inches of ashes or cocoa refuse. The plants will soon fill the pots with roots, and should before top growth is much advanced be moved to a position near the glass in a light airy house, from whence they can be removed to warmer quarters to accelerate the flowering; but they must be kept near the glass. Indispensable as are these general favourites, the Paper-white and double Roman Narcissus are almost as requisite; hence they should be now potted, receiving the same treatment as the Hyacinths. They will come in at about the same time, flowering by November with gentle forcing, or in an ordinary greenhouse in December. The Guernsey and Belladonna Lilies also will need to be potted at once.

Violets.—Plants that have had the runners removed from them, and have been kept free from weeds since they were planted out as rooted runners or suckers in spring, will now have formed good crowns. Such as are intended for planting in frames or pits should be lifted with balls and placed in rich soil, giving a thorough soaking of water and keeping off the lights until frost. If deferred until later the check consequent upon removal retards the flowering.

TRADE CATALOGUES RECEIVED.

James Carter & Co., High Holborn.—*Illustrated Catalogue of Bulbs.*
Charles Turner, Royal Nurseries, Slough.—*Catalogue of Bulbs and List of Strawberries.*
George Bunyard & Co., The Old Nurseries, Maidstone.—*Catalogue of Roses.*
Samuel Yates, 16 and 18, Old Millgate, Manchester.—*Illustrated Catalogue of Bulbs.*



Book (S. M. W.).—We regret we are unable to answer your question. If you can state the subject in connection with which the work was mentioned we may possibly be able to find what you require.

The Hampton Court Vine (J. Jones).—There are between twelve and thirteen hundred bunches of Grapes at present on the above Vine, their aggregate weight being estimated at about 600 lbs.

Notice to Quit (A Cottage Gardener).—No one can possibly understand the case as you have endeavoured to state it, and the only safe course for you to adopt is to consult a solicitor.

Nicotine Soap (A Victim of Bug).—This insecticide has been advertised in the Journal by the manufacturers, Messrs. Corry & Soper, who state that it can be had retail from all seedsmen and florists.

Melons under Rough Glass (Bredbury).—Rough plate glass is unsuitable for pits and frames intended for Melons, as it is only during very bright summers that the fruit can be depended on to ripen well and assume a high flavour in such structures. Much the same remarks apply to Cucumbers—i.e., such good crops cannot be depended on under rough as under clear glass.

Peaches Decaying (R. E. H.).—The specimen was very much crushed on arrival, but so far as we are able to judge by an examination of the decaying mass the fruit appears to have been punctured by some insect, it may be by the

larvæ of a Tortrix. Search carefully, and you may possibly find a small inconspicuous caterpillar, and if so you may conclude it is the cause of the mischief.

Grapes Cracking (R. S. O.).—The Madresfield Court Grape is more liable to crack than many other varieties, and we have observed that it often cracks the worst when the crop is light in comparison with the vigour of the Vine. Possibly if you notch the wood just below the bunches, and so check the flow of sap to the fruit, that you may mitigate the evil. Mildew may be destroyed by dusting it with sulphur.

Land Valuation (J. B.).—It is impossible for anyone to answer your questions satisfactorily without an inspection of the land and possessing some knowledge of the district. The land in some localities is steadily increasing in value, and the increase in time may be considerable, while in other places the reverse may be the case. It is only by a full consideration of these circumstances that the leasehold value of the land can be obtained, and whether long or short leases are likely to be the most advantageous to the occupier. Consult someone in the neighbourhood who has good practical knowledge on the subject. In no other way can you act with safety.

Plants at the North Pole (F. N.).—In 1873 Capt. A. H. Markham collected, chiefly at Frobisher Bay, *Ranunculus græcilis*, *Papaver alpinum*, *Lychnis apetalæ*, *Stellaria Edwardsii*, *Dryas octopetala*; *Saxifraga cæspitosa*, *S. nivalis*, *S. flagellaris*, and *S. oppositifolia*; *Pedicularis hirsuta*, *Juncus biglumis*, *Salix arctica*, *Alopecurus alpinus*, *Festuca ovina* var., *Pleuropogon Sabini*, *Platysma juniperinum*, and *Alectoris ochroleuca*. There have also been found there *Draba alpina*, *Cerastium alpinum*, *Taraxacum Dens-leonis* var., and *Poa flexuosa*. These were collected in the highest latitude from which flowering plants have hitherto been obtained. Of these the *Pleuropogon* is the only genus absolutely confined to the Arctic regions.

Painting Greenhouses (J. E.).—We scarcely understand your question. You ask for the "best form of stage for painting the roofs." The term "stage" implies that you mean the inside portion of the roof, as only ladders are required on the outside. For this purpose a "box ladder" is employed in some places, the steps being flat, and boarded from the back edge of the lower to the front edge of the step above it, the steps being of a suitable angle for the roof. A workman cannot touch the glass with his feet when on a ladder of this kind. Such ladders, however, are heavy, cumbersome, and rather expensive, and most painters can do very well without them with an ordinary ladder placed on battens and a board placed under the ladder. If you refer to the inside of the roof the "stage" must depend on the arrangement of the house, and a painter will be able to suggest the best form for using.

Summer-pruning Fruit Trees (Idem).—All the breastwood and superfluous growths of Apple and Pear trees should be removed at once, shortening them to about four leaves next to the main branches. The buds so left will not produce a second growth now; perhaps the top one may do so, but it can be pinched, or left to be removed at the winter pruning. Of course any shoots required for further branches and the extension shoots for occupying further space must be retained.

Removing Potato Haulm (Idem).—After the disease is clearly present in the foliage and stems it is no use removing the haulm for the preservation of the tubers, but if the haulm is removed before the foliage is affected the tubers will be safe. We have not known it necessary to remove the haulm of Magnum Bonums, the stems of which appear to contain much woody tissue, which possibly arrests the spread of the mycelium of the fungus, and the tubers are left in comparative safety. The more fully the stems and foliage are exposed to the air the firmer they become, therefore thin planting should be adopted.

Tea Rose Luxuriant (S. H.).—It is not easy to advise you without knowing the condition of the other portions of the plant. If the other growths are healthy, fairly strong, and well placed for covering a wall, it would be prudent to shorten the luxuriant shoot so as to equalise the sap and form a good foundation for a healthy plant. If the other portions are very weak the shoot may grow unchecked for the purpose of encouraging root-action, and be shortened as required in the winter, the weaker growths being cut away.

The Trebbiano Grape (W. A. B.).—To have this Grape in good condition it requires a higher temperature than is necessary for Black Hamburg and Foster's Seedling. The Grapes sent, owing to having been loosely placed in a tin box, were so much crushed by being shaken in transit as almost to be unrecognisable, while the juice saturated the letter accompanying them, reducing it almost to pulp. The Vine should have the benefit of fire heat now for maturing its growth, unripe wood being the source of many failures in Grape culture.

Propagating and Wintering Tuberous Begonias (F. B., Norwich).—If you insert strong healthy cuttings at once in sandy soil in a propagating pit they will emit roots speedily, and form small tubers before the winter. The cuttings must only be shaded to prevent flagging, and must be inured to light and air as soon as possible to induce healthy growth. After the growth has died down we should plunge the pots in slightly moist cocoa-nut fibre refuse in a temperature of about 55°. If the small tubers are kept too dry they will shrivel, and if too wet they will decay, especially if in a low temperature. You must not expect every tuber to grow in the spring, for even when great care has been exercised in preserving them a number of tubers not infrequently refuse to start. We should insert the cuttings singly in 3-inch pots, and winter the tubers in the same pots, as it is too late for inserting cuttings to be potted off this autumn.

Propagating Bedding Pelargoniums (T. J.).—No one can tell what the weather may be a week after writing. In ordinary weather, and the soil being moist when used, the cuttings would receive no harm from not being watered during that period. In dry weather a good watering may be given; but had showers prevailed, as they have done heavily in some districts, artificial watering would have proved deleterious. The soil should not be dust dry for long together at any time. Seed of *Anbrietias* sown now will not produce plants that will flower next spring. The same remark applies to perennial *Alyssums*.

Second Crop of Figs (X. F. Z.).—If the trees are in a house to which heat can be applied the shoots may be pinched above the fruit, which will then ripen, a proper temperature being maintained. If the trees are in the open air and in a weak state, the ineipient fruits had better be removed; but if the trees are luxuriant the second crop will do no harm if left on until the fruits shrivel and drop off. Without knowing to what trees you refer as being unhealthy we are unable to suggest the cause of their unsatisfactory state, but we know that many forest trees were considerably injured by the prolonged severity of last winter.

Shaw's "Market Gardening" (Inquirer).—Owing to an extraordinary press of matter that we have experienced for some months past we have been reluctantly compelled to defer the publication not only of notices of some books,

but also of communications of value and interest that have been kindly sent to us by various correspondents. Failing an opportunity of referring more fully to the book in question, we now say of it briefly that it is a small work on a great subject. It is written by a practical and observant gardener, who has very fairly described what he saw in his visits to several large fruit, vegetable, and flower-growing establishments, and recorded what he learned during such visits. As the leading growers of garden produce for market do their work well the cultural remarks embodied in the chapters are sound, and may be usefully adopted by many gardeners and cultivators of the soil.

Alsophila australis Unhealthy (*E. Sheffield*).—In all probability the wet and cold soil has caused the roots to decay, a process that would be greatly accelerated by the injury to the foliage by the sulphurous fumes to which you refer. If the roots are dead round the outside of the ball formed by the pot, from which we presume the plant was removed, it is no use packing fresh peat round them. You had better take the plant up and carefully remove the soil until you find live roots, removing all that are dead, then either pot the plant again or place a fresh sweet compost of turfy peat and broken charcoal round the roots, and if carefully watered that will promote the emission of fresh roots. At the same time syringe the stem of the plant frequently, keeping it moist, also the atmosphere of the house, and in due time your plant may recover. You cannot, however, expect it to thrive if fumes from the stovehole are permitted to enter the house.

Seedling Pelargonium (*A Gardener's Wife*).—We are sorry to inform you that the flowers of the Zonal Pelargonium shared the fate of nine-tenths of those that are sent to us when a little clear gum has not been dropped into the centre of the flowers to seal the petals. The moment we opened the box all the petals fell except from one flower. If the others are equal to this the variety is one of the best that has been submitted to us for a long time. The flower is perfectly circular, with stout smooth velvety petals, the colour being rich scarlet with a small clear white eye. The truss is good; and if the foliage is also good, the habit sturdy, and the plant floriferous, we consider the variety well worth preservation; but whether it is distinct from other varieties in commerce it is impossible to say without comparing it with those in a very large collection. We are glad that, like many other gardeners' wives, you take such an active interest in your husband's work. Such encouragement is helpful, sweetens labour, and not seldom contributes to success.

Dwarf Cabbage (*Rev. J. A. W.*).—No one could possibly identify the Cabbage from the specimen sent. If the plant that produced the heart, and which is of the size and shape of a swan's egg, received no check during any period of its growth, but was a full and well-grown specimen, we suspect the variety is distinct. By all means preserve the plant, protecting it with a hand-glass if necessary during the winter, and before the flowers expand in the spring envelope them with gauze to prevent insects having access to them. This is very important, as it is essential that the flowers be fertilised with their own pollen to ensure the perpetuation of the variety. If you succeed in raising a number of plants identical in size and form with the parent, we think you will be justified in attaching a name to this diminutive Cabbage; and if the variety proves very early as well as very small, it is likely to meet with considerable favour from cultivators.

Muscat Grapes Shrivelling (*A Fourteen-years Subscriber*).—It is not possible for Grapes to swell and ripen when so much infested with thrips as yours appear to be. Not only are what you term the "best" sample of leaves covered with the insects, but they have almost entirely destroyed the epidermis of the footstalks of the fruit, and so restricted the flow of sap which is essential for the swelling of the Grapes. The great injury which the foliage has sustained must also have checked the root-action considerably, and the Vines are not in a condition for carrying a heavy crop next year. You must first destroy the thrips by sponging every leaf, and when the Grapes are cut syringing with an insecticide, and fumigating. You had better also encourage the growth of laterals and keep them clean. You do not state the age of the Vines. Possibly they would be benefited if the roots were lifted and placed in fresh soil, for judging from the appearance of the leafstalks we think the Vines are deficient in vigour. You must clearly understand, however, that they cannot possibly be brought into a satisfactory state as long as insects are permitted to remain in the house.

Aviary in Greenhouse (*W. J. L.*).—We do not know of any contrivance by which the birds can be protected from smoke when the house is fumigated; but we have long had birds in a greenhouse, and with cleanliness by syringing and otherwise good culture we have succeeded in preventing insects infesting the plants, and rendering fumigation unnecessary. This is the best practice you can adopt. You would, however, find a fumigating case useful—a wardrobe-like frame, well made and covered with close calico or some other suitable material, and having closely fitting doors. In this case such plants as show Pelargoniums, Calceolarias, Cinerarias, and others subject to the attacks of aphides could be fumigated and the insects destroyed before the plants are placed in the house. Such a case, in which a few plants can be placed and fumigated as required, often prevents the necessity of fumigating a house, and a considerable saving of tobacco is effected.

Costmary (*W. Gleave*).—The leaves you have sent are of this old herb, which is also known as Alecost. It is the Pyrethrum Tanacetum of Linnæus, and Balsamita vulgaris of Willdenow. The whole plant has a strong aromatic and agreeable odour, and a bitter warm taste, from which it has been regarded as a stimulant, and very energetic. It formerly enjoyed great reputation as an antispasmodic, and macerated in oil it formed oil of balm, so much used for applying to wounds, and particularly to contusions. It is a native of the south of Europe, and is an old inhabitant of British gardens. It was quaintly described and its uses recorded as follows by Parkinson 250 years ago:—"Costmary or Alecost is a sweet herbe, bearing many broad and long pale green leaves, snipped about the edges, every one upon a long foote-stalke; among which rise up many round greene stalkes, with such like leaves on them, but lesser up to the toppe, where it spreadeth it selfe into three or foure branches, every one bearing an ymbell or tuft of gold yellow flowers, somewhat like unto Tansie flowers, but lesser, which turne into small heads, containing small flat long seede: the roote is somewhat hard and stringy, and being divided, is replanted in the Spring of the yeare for increase. Costmary is of especial use in the Spring of the yeare, among other such like herbs, to make Sage Ale, and thereupon I thinke it tooke the name of Alecost. It is also used to be put among other swete herbes, to make swete washing water, whereof there is great store spent. The leaves have an especial vertue to comfort both the stomack and heart, and to warme and dry a moist braine."

Imported Orchids (*S. M. D.*).—We cannot better reply to your question than by publishing the following from Mr. B. S. Williams's "Orchid-Growers' Manual," a work which you will find of great use:—"When unpacked these should have every leaf and bulb spoused over, and all the decayed parts re-

moved. There are many insects that harbour about them, such as the cockroach, and different kinds of scale, which are great pests. When clean they should be laid on dry moss and placed in some part of the Orchid house, where they are shaded from the sun. After a week or two pot them, or put them on blocks. Water must be given very sparingly at first, as it is liable to rot them; too much of either light, heat, or moisture at first is very injurious. The moss or peat should be gradually moistened, and when they begin to grow and make roots they should be potted, or put on blocks or in baskets, but care should be taken not to have the pots too large, overpotting being dangerous. As soon as the plants begin to grow those which come from the hotter parts of India should be put at the warmest end of the house, but they should not have too much moisture when first starting into growth: those which come from the more temperate regions should be kept in the coolest part of the house, and they should not be allowed to stand under drip, as this frequently rots the young shoots as soon as they appear. Such plants as the species of Vanda, Saccolabium, Aërides, Angraecum, Phalaenopsis, &c., I place so that the heart or crown hangs downwards in order that no water may lodge about them. They should hang for about a fortnight, and may afterwards be put on blocks or baskets with moss; but they must have but little water until they begin to grow and make new roots, after which they may be treated in the same manner as established plants. This is much the safest mode of treating these valuable Orchids on their first arrival in this country." The price of the book is 7s. 6d., not 5s., as we inadvertently stated a short time ago, and which we quoted from an older and smaller edition.

Names of Plants (*E. B. W.*).—1, The fronds appear to be those of Adiantum hispidulum, but are small for that species; 2, Specimen insufficient for identification, but it resembles Aspidium aculeatum; 3, Selaginella caesia; 4, S. Wildenowii; 5, Hebeclinium lanthum; 6, Stapelia bufonis. (*R. Masters*).—Diplacus glutinosus. (*H. Begbie*).—1, The specimen sent was scarcely sufficient for identification, but it appears to be a large form of Campanula rotundifolia; 2 is Hypericum perforatum. (*F. C.*).—Owing to the specimens having been packed in cotton wool they were so shrivelled as to be unrecognisable. (*G. D. C. T.*).—We cannot with certainty identify the specimen, but it resembles Sedum altaicum. (*A Reader*).—1, Asplenium longissimum; 2, Asplenium dimorphum; 3, Cyrtomium falcatum; 4 and 5, Insufficient for identification. (*C. F.*).—Both specimens were greatly crushed in transit through the post-office, but the one with yellow flowers is apparently Chrysanthemum bipinnatifidum. (*G. P., Hunts*).—1, Leycesteria formosa; 2, Lavatera arborea flore-pleno; 3, Eupatorium purpureum.



POULTRY, PIGEON, AND BEE CHRONICLE.

THE CROSS-BREEDING OF SHEEP.

(Continued from page 193.)

HAVING described the various pure breeds of sheep, without which crossing would be comparatively unprofitable, we now propose to allude to the plans and systems adopted by the most eminent agriculturists in improving and establishing those breeds which stand highest in estimation, and also to consider the means we have for raising animals of a style and character distinct from those we possess at present. We will take first the Hampshire and West County Downs. The native breeds in both Hampshire and Wiltshire were originally horned white-faced animals. They were large, coarse, flat-sided, but hardy sheep, well suited for folding on the hills. These horned Hampshires were crossed with the South Down nearly or quite one hundred years ago; but the Wiltshires were not often crossed, but exchanged for South Downs somewhat later, for it occurs that the last flock of these horned sheep were seen in the year 1819. Be this as it may, both the Hampshires and Wiltshires as Down sheep were coarse animals, the former being the worst, and showing less of the South Down character than the Wiltshire. Neither of the breeds showed any improvement worth notice until about the year 1830, when Mr. John T. Twynam of Winchester used the improved Cotswold ram with his Hampshire ewes, and the result of the first cross gave a strong proof of the preponderating effect of the male animal. This cross gave by careful selection of the darkest-faced and best sheep a valuable opportunity for the breeders in both Wiltshire and Hampshire to improve their flocks, and some of them did so by the purchase of rams from Mr. Twynam's flock. It may be fairly inferred, that although special circumstances occurred to prevent Mr. Twynam from carrying out his original object of establishing a cross breed of a type and character similar to what has since been done in the Oxford Down, yet it

effected a great improvement in the flocks in both counties, the animals yielding more wool, having a greater aptitude to fatten, and producing a greater number of twin lambs. The next improvement in connection with the Hampshire or West County Down breed occurred through the intelligence and perseverance of the late Mr. William Humphrey, of Oak Ash, Chaddleworth, Berks, specimens from whose flock were often prizewinners at the Royal Agricultural Society's meetings. It may be stated that it was these splendid sheep which induced the Royal Society to admit into their prize list the Hampshire or West County Down. These had previously been exhibited in the short-woolled classes with a variety of others, and we recollect at the Chester Meeting of the Royal Society that this stock as shearlings exceeded all others.

The method adopted by Mr. Humphrey in establishing the type of his improved Hampshire Downs was as follows. He has said, "I received my first impression of the desire to improve my sheep through noticing the manner in which the Cotswold breed had been improved by crossing with the smaller Leicester breed, and the most robust animals of the produce being selected for use; the thought then struck me that my best plan would be to obtain a first-rate Sussex Down ram to put to my larger Hampshire Down ewe, in order that I might improve the quality and form of flesh, still retaining the size and hardihood so necessary for folding on our cold and exposed hills. In consequence I applied to Mr. Jonas Webb, who sent me a shearling by his favourite sheep called Babraham, and for two years I selected for myself but did not use them, as they did not suit me so well. I then commissioned him, without regard to the cost, to send me his sheep which obtained the first prize at the Liverpool meeting of the Royal Society; and from the first and the last two sheep—by marking the lambs of each tribe as they fell, then coupling them together at the third and fourth generation—my present flock was made, not having used any other blood on the male side for more than twenty years. I found some difficulty at first when putting the first-produce ram to the first-produce ewe, the lambs coming too small to suit my customers. To obviate this difficulty I drafted out the smallest-bred ewes, replacing them with the largest Hampshire Down ewes which I could meet with that suited my fancy, still continuing to use the most masculine and robust of my rams to keep up the size. Some of my friends advised me to use a large coarse sheep to the smallest ewes to remedy the defect, but the larger ewe seemed to me the better way, and that course I pursued, and the using of no male animal but my own, the pedigree of which I was acquainted with for more than twenty years, has succeeded beyond what I could have expected." Now, we recommend all parties intending to raise a new breed by crossing to take particular notice of Mr. Humphrey's mode of procedure, because we consider it not only based upon sound principles, but because it has the further recommendation of his great success.

As an improver of the Wiltshire Down breed, originally descended from the Sussex Down, we must introduce the name of Mr. James Rawlence of Bulbridge, near Wilton, who says, "I commenced improving my flock by drafting all the small and delicate ewes, and the remainder were crossed with rams of the Hampshire breed. I bred from their produce for some years, and then had another cross with the Hampshire, still continuing to cull defective ewes. After I had obtained considerable size from the infusion of the Hampshire blood I had recourse to some rams bred by Mr. Humphrey of Chaddleworth, Berks. I use my own rams, and I also frequently purchase a few of the best Hampshire ewes I can get, put my own sheep to them, and use their lambs. I also put a sheep of Mr. Humphrey's to some of the best of my ewes, and select rams from their produce, thus getting fresh blood without making an entire cross." Mr. Rawlence's great experience and success renders his observations worthy of great attention and consideration by flock-masters in general.

We must now give the particulars and origin of the celebrated new Oxford Down breed, which has been recognised by the Royal Agricultural Society as an established style and type of sheep, and included in their prize list within the last twenty years. These large and beautiful animals, of which the late Mr. Samuel Druce of Eynsham, Oxon, was one of the earliest and most successful breeders, says that "the foundation of this class of sheep was begun here about the year 1833 by using a well-made and neat Cotswold ram with Hampshire Down ewes. At the same period several breeders of sheep in this neighbourhood also tried the experiment, consequently there has always been an opportunity of getting fresh blood by selecting sheep which suited different flocks, and thereby maintaining the uniform character which is now established." Mr. Druce adds, "With ordinary skill in sheep-farming I find no difficulty in keeping the form and size of the

animal as it should be, the wool of a valuable texture, and the carcass not deficient in quality; and I maintain that the good qualities can be better secured by employing the cross-bred animals on both sides than by confining the practice to the first cross." Mr. Charles Howard of Biddenham, Bedford, has also been a very successful breeder of the same class of sheep, and following pretty much the same method of obtaining it as that pursued by Mr. Druce. This breed of sheep now ranks very high in the estimation of farmers, particularly in the midland counties. In referring to the Shropshire Downs, which although of mixed origin have also been admitted into the prize lists, and to some extent may be considered rivals of the Hampshire and South Down stock, have unquestionably sprung from an original and local breed called the Morfe Common sheep, a locality near Bridgenorth, for a long time, in consequence of their being crossed with not only the long-woolled Leicesters and Cotswolds, but also the short-woolled South Downs. The admixture of such different blood prevented such a uniformity of type as was desirable; but as the system advanced in sheep-crossing they have been improved, so that they are also admitted into the prize list of the Royal Agricultural Society; and at the Chester meeting, where they were shown with other breeds, they were distinguished by receiving the prizes as older sheep when they had no chance against the Hampshires as shearlings. These sheep still vary more in character and style than any other recognised breed, but Lord Chesham has done more to fix a type for them than any other breeder.

Now, after having related matters as to the characteristics of certain breeds it is a question of great importance, and may be made valuable by the selection of rams of certain breeds for crossing the off-going ewes or the last year of breeding for the sale of lambs or tegs for slaughter, and for this purpose the Oxfords offer a better alliance than the long-woolled and white-faced breeds, because the butchers prefer sheep with dark faces, as they are sure to die with more internal fat, making also a higher price at a given weight. We will now give a few of our opinions relating to the possibility of raising a new breed, and possessing in our opinion some valuable qualities beyond either of our types at present in existence. Having been accustomed for many years to the rearing of lambs bred from the horned ewes, both of Dorset and Somerset, produced by a cross with a Down ram, we have often thought if a breed could be established of this cross how desirable it may be if carefully carried out. We have been led into this way of thinking because many years ago there was a little movement in this direction made by some of the Dorset and Somerset breeders, who thought that they may give up the idea of horned sheep and obtain all the advantages they required from a Down breed; but they soon found that the Downs would not lamb early, even in their climate and soil, where the horned ewes had always done so. They also found that the horned ewes leave a superior fold of manure for the food consumed compared with the Downs, and that they could not raise enough lambs from the Downs. Some farmers tried the first cross, but they were not continued. We have purchased this cross in two instances, and they answered an excellent purpose—lambing early in December with plenty of twins, and the ewes being excellent mothers furnished the best quality of lambs at Easter. In the endeavour to establish a fixed character and type between the horned ewe and Hampshire Down we should select the former of the best class, like those bred by the late Mr. John Pitfield of Higher Eype, Bridport, Dorset, whose stock is still maintained in the county, his rams having been much sought for. These ewes being well-woolled, short-legged, long, deep, and round in the body, also yielding the greatest number of lambs, and being capable of becoming fat during the time of rearing their lambs, which they make of the best quality, would in our opinion if crossed with the Down produce a breed having all the qualities which can be required if carried out as recommended by Mr. Humphrey, and would well repay after some years any farmer of sufficient experience and perseverance who would not hesitate about the trouble and expense.

WORK ON THE HOME FARM.

Horse Labour.—In some of the early districts harvest work will be forward enough for the horses to be employed on the land in various ways; some of them will be engaged in preparing the land for sowing with *Trifolium*, Vetches, &c. After sowing the seed of these green crops upon the cleanest fields, and those requiring the least labour in preparation, some work may then be undertaken on the land called autumn cultivation; but steam power should be made to precede the horse labour, not only because so much more work can be effected within a given time, and more effectually performed, but also because it relieves the animal power of the farm, whether horses or oxen, of the heaviest work. This is a matter of no small importance when

we consider the cost of the food of the working animals, and as far as horses are concerned the yearly depreciation in value also. For a fortnight past, and as soon as the Wheat crop had been carried, we have noticed the double engines steam tackle at work on some farms, very much to the credit of the managers, whether they are on a home farm or occupiers as the tenants of the land. This is taking time by the forelock, and on the same farms last spring we noticed the steam power at work, which forwarded the seed time so much that we now see these fields covered with splendid root crops seeded in due season, as well as fine crops of Barley sown after Wheat. The autumn work we are now recommending could not be done last year to any extent in consequence of the lateness of the harvest, thus leaving a legacy of labour for the present year. There is, however, every appearance of this season continuing favourable for all work required upon the land. Upon the strong and heavy lands preparation for the Wheat crop seeding should not be much longer delayed. Whether the preparation is by the long fallow or after fallow crop, such as Beans or Peas, the land cannot be tilled too soon after the crops are cleared and the manure carted upon the land so long as the weather continues favourable, after which artificials may be sown broadcast and ridged in, or the manure may be applied in the spring. Where the strong lands are put into Wheat out of Clover lea the manure should now be laid out and the land ploughed and pressed, in order that it may become mellow before the seed is drilled; and we must again call the attention of the home farmer to the policy of wide drilling, so that in the spring the ordinary three-shared horse hoe may be effectively employed between the rows; for upon cold strong soils in some seasons the Wheat plant will lose colour and look sickly and yellow, in which case nothing changes the colour of the plant like effective moving of the surface by the horse hoe. The plan of hoeing with the machine, which does the width of the drill at one operation, is by no means suited to the hard surface of the land in winter-sown Wheat, although it does very well upon spring-sown Lent corn, the soil being loose.

Hand Labour.—This will still be required for drawing straw for thatching corn and pulse ricks, the second hoeing of some late root crops which may have been neglected during the harvest, filling and spreading of manure, and hedge-trimming. In the later districts the men will be engaged for a little time yet in cutting and tying the grain and pulse crops, and on such farms all roots should be sown early, so as not to require any attention by horse or hand hoeing during the harvest. The early crops of Turnips are so fine this year that they are now fit for feeding by the sheep, and, in conjunction with a run on the Clover and Saintfoin leas they may be folded at night on the roots, receiving some little cake or corn as the weather and objects for which the sheep are kept may dictate. If sheep are intended to be fattened for the Christmas markets it may be desirable not to allow the sheep to run into other grass keeping, for after they get accustomed to the root food they do best to remain on the land and have a small fold twice each day with half a pound of cake or corn at first, but further on in the season they may have one pound each sheep; but they never pay for more, because they cannot properly assimilate a larger quantity, or turn it into profitable meat. As the root crops are so abundant the milch cows may have some Turnips drawn on to the pastures as supplementary to the grass food. If, however, a butter-making dairy is kept the root-feeding should be omitted, and cake or corn added where the grass is short. When the root crop is abundant like it is now at least one-third of the crop may be pulled and carried away, two-thirds of a full crop being quite enough for consumption on the arable land with cake where a corn crop is to follow. Now is the time for the home farmer to consider his position as to obtaining the cattle for stall or box feeding during the winter; but where there is a good sale for milk, or where it is convenient to obtain calves for suckling, milch cows with calves at foot will pay more money than fattening bullocks, especially if the cows are kept to the stalls and receive the same allowance of food as the fattening cattle. In that case the cows if well bred, either Devons, Herefords, or Shorthorns, will feed out fat, although they may give a profit in milk or in suckling calves for veal. The ewes in lamb must now be looked to very carefully, and care taken that whilst food is so plentiful as now that they do not get too much forcing food; and whether the stock is horned Dorset ewes—now getting heavy in lamb—or late-lambing down or cross-bred ewes, they may be kept too high, and suffer at lambing time in consequence if they make fat internally during pregnancy.

THE POULTRY YARD IN SEPTEMBER.

WE are apt to think that our poultry yards require no attention while fine and dry weather, such as we have had for the last fortnight, prevails. This is by no means the case. We have found sickness particularly liable to appear and spread during dry summer time. The cause of this is somewhat doubtful. It may be that in the absence of rain to wash the soil it becomes foul and tainted; at this season, too, we are apt to have our stock at its highest numbers, which of course contributes to the same evil. Thinning should be continued as fast as possible, and lime-washing freely resorted to, even well-kept houses become offensive in summer without it. Chickens which cough should be separated from their fellows, well fed and stimulated till quite cured.

Sneezing and coughing are often the first signs of a want of tone in the system, which if neglected may terminate in roup, but which, if taken in time, passes off very rapidly. In most places growing chickens suffer now from the decrease of insect food; old birds too are going, or soon will go, deep into the moult, and all will be better for a tonic. We have long used one, when occasion required, taken from the pages of our old friend "The Henwife," and always find it efficacious.

"One pound of sulphate of iron, one ounce of sulphuric acid, dissolved in a jug with hot water; let it stand for twenty-four hours, and add one gallon of spring water. When fit for use, one teaspoonful of the restorative to a pint of water, given every other day to chickens, and once a week to old fowls, will make roup and gapes entirely a stranger to your yards."

Chickens hatched at this season are generally delicate, and seem to pine from unaccountable causes. If it is desired to rear any, we have found it best (save in the case of Bantams) to let them live the most natural life possible. We have some ourselves doing admirably. The hen sat herself in a hedge, and has from the first ranged with the chicks at complete liberty, taking them back every night to their dry birthplace in the bank. We suspect that some of the mysterious maladies which beset summer chickens may be attributed to the foul air of coops, and the ease with which the soil, as we have before said, now becomes soured, if they are kept long on the same ground.—C.

CANARY TREATMENT IN OLDEN TIMES.

I HAVE before quoted from an old work treating upon Canaries, and I here give a chapter showing forth their "dispositions and inclinations." The writer, Mr. Hervieux, says—

"It may truly be said that almost all Canary birds differ in their temper and inclinations, but being afraid it would take up too much time to distinguish between them all successively, I think fit to divide them into four classes. In the first place I find some cocks who are always of a melancholy temper, and if I may so call it, thoughty, who sing but seldom and in a doleful tone, being for the most part huffed up. This sort of Canary birds seldom answer the end they are designed for, for if you would teach them to sing flageolet tunes they are a prodigious time learning, and are never perfect in what they have been taught; besides that, what they have learnt they easily forget, especially the first time they come to be sick, as at moulting time or the like; and sometimes there are such as pine so much at being always covered that they die, and this sort of Canary birds, though they are cocks, I believe would never sing unless they were put to it under other old brisk Canary birds, that hearing them continually sing they may in some manner serve them instead of masters. These same birds are sometimes naturally so slovenly that their feet and tails are always very dirty. When you would clean them without danger you must use the following precautions:—Take the Canary birds into your hand, and with a little spittle by degrees take off the hardened filth that sticks on their feet which often hinders them from perching, and it often happens that when care is not taken to clean them their feet grow sore and their claws drop off. If you will make use of water instead of spittle to clean them it must not be cold, unless it be in very hot weather, for besides that the cold water does not clean them so well, there is danger that it may kill them through coldness striking to them on a sudden, especially in winter. Some young curious persons have lost their Canary birds by using of cold water at a time that did not seem to them cold enough to warm it, and your hands ought to be hot when you take hold of the bird."

As evidence that Mr. Hervieux estimated his mode of treatment at some considerable value, he says, "All the particulars I take notice of in this small treatise are of such consequence that those who through ignorance or negligence do not observe them lose many of their Canary birds, for those little creatures are of so tender a constitution that a very small matter impairs their health and occasions their death. On the other hand, if you design to have this sort of Canary birds to sit there is not only reason to believe that their young will be no better than the old, but the first cross accident that happens in their breeding, as the death of any of the little ones, or any distemper of the hen, or any other thing of this sort, they grow melancholy and dull that they often die; or if they happen to survive it they are all the rest of the time they remain in their huts so heavy that they never cheer the hens by singing, especially when they perceive the young begin to hatch. I would advise those who have any of these to get rid of them to save themselves the concern it will be to them to see that whatsoever they can do for them nothing will succeed.

"There are other cock Canary birds so mischievous that they kill the hens that are put to them; but sometimes it happens that those cocks have some other qualities which make some amends for that fault; as for instance, they sing very sweetly, have very fine feathers, and are very familiar, therefore there is no need of getting rid of them since they have good qualities to recompense for the bad. Besides, if for want of another cock you are resolved to have a breed from them you may do it as I will here prescribe." The writer's system of preparing a couple of hens to place to one cock bird is practically good, but although his particular system has long been adopted by most of the London fancy breeders, still I prefer the mating of only one hen to a cock bird if for breeding with in a cage. However, here is his plan:—

"Take two very strong hens, and if possible let them be a year older than that mischievous cock you design for them; put these two hens sometimes together into the same cage that they may grow very well acquainted, and by that means not grow jealous and fight when they have but one cock between them. A month before they are put up in order to sit they are both to be turned into the same hut, and when the proper time for coupling is come put in the cock to the two hens; he will be sure to beat them, especially during the first day he is with them, but both the hens joining to defend themselves against him, they will at length gain an absolute ascendancy over him, so that he, perceiving he can gain nothing upon them by force, he will in a little time grow so familiar with the two hens as to gain them by kindness, and thus these weddings by force often prove more successful than others, from which great hopes were conceived, and in the end came to nothing or very little. I have taught this way of coupling mischievous Canary birds to some who have owned that it has proved successful."

The above method is very good when matters run smoothly, but in seven cases out of ten when two hens are placed in a cage with one cock bird one of the two becomes a favourite, and this leads to jealousy. If one hen should obtain a choice scrap of building material in the shape of a spray of moss or a feather the other hen will not rest until she obtains it, and this leads to unpleasantness in the household. The nests thus often become damaged, and in the hens' eagerness to protect their respective building places I have not only seen the entire nests dragged out, but also the eggs scattered about the cage.—GEO. J. BARNESBY.

VARIETIES.

THE ENGLISH HARVEST.—We have, says the *Agricultural Gazette*, been privileged with a glorious commencement to our English harvest, and we have some reason to hope for a continuance of the same favourable conditions. It happily does not always rain here; and the longer a tolerably fine season is overdue the more likely is its immediate arrival to be. We may encourage ourselves by remembering that we are now entering upon the most settled period of the year, when dewy mornings, bright days, and cooler and keener air prevail than in the dog days. Over the southern counties harvest is rapidly drawing to a close. In many places the Wheat has been garnered, and a little late Barley or Oats is all that remains out. In the midlands rapid progress is being made, and in the north the splendid weather which has enabled south country farmers to secure their crops has been filling ears of corn beyond the hopes which farmers dared to cherish a month ago.

— **PREPARING FOR ROOT CROPS.**—The same paper observes that the next three months is the season for laying the foundation for heavy crops of Mangolds, Potatoes, and Swedes in 1881. Now is the golden time for steam cultivation, for ripping up stubbles—cultivating, cross cultivating, and dragging them—getting off couch and turning it. Much of success in farming matters depends upon taking time by the forelock, and performing every operation rather before than after its recognised season. The early worm can do but little injury to the early crop, and the early farmer is the man to meet times in which late and lazy men have no chance.

— **FOOD PRODUCTION IN AMERICA.**—One of the strangest cases of speculative discomfort, says the *Prairie Farmer*, is the fear expressed by some that there will be an over-production of food in the United States, and that such over-production will lead to financial embarrassment. It is true that the Dutch, upon gaining possession of the Spice Islands, cut down a large portion of the spice-yielding trees in order to enhance the value of what remained. On this

principle some croakers would have us kill off half our cattle and burn half our crops before reaping, or what would be about the same thing, refrain from raising more than one-half of what our soil and industry are capable of producing, lest, forsooth, there be a plethora, a glut, or an over-production of bread and meat, and food be a drug in the market! Nonsense. There is no such thing as over-production, and in articles of food even the appearance has not been presented. The American people are the only ones in the world now, or in the history of the world, that have had enough to eat. The Germans have not enough to eat; they cannot get it. The French have not enough to eat; they stint themselves. The English have not enough to eat, but try to supply the want by the use of cheap beer. The Irish certainly have not enough to eat and never had. The people of Asia are all on the brink of starvation. The people of Africa make cakes out of mosquitoes. The tribes of South America fare no better. With ninety-nine hundredths of the people of the world insufficiently supplied with food, what nonsense it is to talk about an over-production of breadstuffs.

— **NEW HOPS.**—Two pockets of Hops, the first of the season in this district, were sold to a resident at Hereford on Tuesday at £12 per cwt. They are the earliest pick on record in that neighbourhood, and are of an exceptionally superior quality for so early a gathering. The Hop crop promises to be one of the finest known for years.

— **MORTALITY OF CATTLE FROM AMERICA.**—Referring to this subject a correspondent makes the following remarkable statement:—Out of 375 cattle shipped for England in the "*J. C. Stevenson*" 357 died; 175 were shipped in the "*Glendawe*," and 157 died; 266 were shipped in the "*Canopus*," and 219 died, the cause being attributed to the rough weather in the Atlantic at that time; but he further states that during the late calm weather the "*Edward*" lost 30 out of 130 cattle, and the "*City of Bristol*" 127 out of 460, which is attributed to improper stowage and defective ventilation.

— **HARVEST PROSPECTS IN SCOTLAND.**—The Leith correspondent of the *Mark Lane Express* writes under date August 28th:—"The harvest makes rapid progress all over Scotland. In the Lothians and in the adjoining counties much has been cut down during the past week, and a considerable quantity carried and stacked in safety. Some small portion of the Oat and Barley crops has also been thrashed and brought to market; the samples, however, can scarcely be reckoned as fair representations of either crop. Oats were generally of good colour, but some of the lots gave evidence of too rapid ripening, and therefore showed a somewhat shrunken or shrivelled appearance. Barley.—The two sample sacks shown in Edinburgh Market on Wednesday were high-coloured and rough though of good weight; but these do not represent the crop properly, as there will be much fine-coloured and weighty Barley; but there will also be a considerable portion of secondary colour and quality. Wheat promises well, but that crop does not come on so quickly as either Oats or Barley. There will be good quality and an excellent yield, perhaps a full average. Potatoes still promise largely, and, though the disease does exist, with fine dry weather for the next three weeks we hope to hear little of it. The yield will be large, and if disease keeps off will probably range from 8 to 12 tons per acre. Turnips are irregular, but there are many fine fields in the Lothians, Stirlingshire, Perthshire, and Fife—except, indeed, the 'East Neuk,' where so little rain fell."

UTILITY OF DRONES.

A SMALL pamphlet on "Bee-keeping for Amateurs" from the pen of Mr. Thomas Adley of Epworth has been published lately. I am not going to review the work of Mr. Adley here further than to say that it might be improved by revision and correction. The neighbourhood of Epworth has many bee-keepers, and Mr. Adley collects hundreds of swarms of condemned bees every year, and sends them to bee-keepers in all parts of England who want such to strengthen their own stocks and for feeding into stocks. I think no other person in England has saved with his own hands more bees from the brimstone pit than Mr. Adley has. "Drones," says Mr. Adley, "are male bees, and are necessary to a prosperous condition of the hive, not only for the fertilisation of young queens, but as a means of keeping up the heat of hives during spring when

early brood is hatching with fewer working bees than would otherwise be required. Thus many more workers can go abroad in search of honey and pollen than in hives which have not any drones. Afterwards, when the drones increase in number, they come out and fly abroad, which indicates that they are becoming stronger and are coming nearer the swarming point. As regards attempting to destroy drones it is a great folly to do so, as the bees know best how to dispose of them when no longer needed. When the principal part of the season for breeding has gone by, and the time has arrived for the storing of honey, the banishment of drones begins. Some seasons when drones become very numerous their destruction commences at an earlier period. When drones are seen late in the autumn it shows that there is some deficiency in the store of honey or that the queen is not fertile, or some other cause."

This quotation, containing as it does so many mistakes and inaccuracies, is enough, and long enough, for the intelligent readers of this Journal. The idea of drones being bred early to keep up the heat of hives when they have few bees is certainly new, but this novel and extraordinary idea is contrary to fact and reason. Drone combs are generally built on the outside edges of combs, and hence drones are not bred till the hives are nearly full of bees. Bees know better than Mr. Addey what is good for them, and avoid rearing drones in the early spring months when they are not wanted. Working bees are as good as drones for producing heat, and are otherwise more useful than drones. Again, in the banishment and destruction of drones the bees are guided by laws and conditions different from those of the pamphlet now quoted. In ordinary cases drones appear about the time of swarming, and are reared for the fertilisation of young queens. When this is accomplished they are of no use whatever in hives, and are considered by the bees worthless nuisances, and therefore they are destroyed. After swarming, when hives become full, drones are hatched, as at the swarming season. In good seasons they are permitted to live till the end of the season, when the general drone massacre takes place. In seasons of scarcity and famine the bees, instinct with self-preservation, destroy both old and young drones hatched and unhatched. The useful and industrial part of the community is so far protected and preserved by the destruction of the lazy and useless drones.

The bees in this locality have this season been constantly on the borderland of starvation, and drone brood and drones adult have been at a great discount throughout. They have had a sorrowful time of it.—A. PETTIGREW.

COMB FOUNDATION.

I SHOULD not again trouble you on the subject of comb foundation but for Mr. Cheshire's keen remarks on page 201. I offered in my last an alternative as an excuse for the attempts made by Messrs. Cheshire and Raitt to strengthen foundation, it having been implied in "B. & W.'s" communication that such efforts showed that they had failed to succeed, while I affirm I have succeeded. I expressed my doubt that they had failed, but that a natural desire to meet the craving for novelty, or the desire to make the use of foundation really and in spite of careless handling effective (which would be a most meritorious result), had exercised their ingenuity. Mr. Cheshire has chosen to take the former branch of this alternative to himself, to which my observations by no means bound him, but he knows best why he identified himself with it.

In the second paragraph of his letter he says the first letter of mine puzzled him a little, but his second has brought a solution. May I ask what puzzled him? He says later on, "Mr. Procter rightly supposes that experimentally I know nothing of breakdown." Is it that anyone except Mr. Cheshire has had the same experience? Is this the puzzle? Has Mr. Cheshire a monopoly of success, and has he been raised up only to supply the deficient intelligence of the vulgar multitude on apian matters?

Now with regard to his remarks on my veil and the solution it offered to my former letter, I beg to inform Mr. Cheshire that for nearly forty years I have been a progressive bee-keeper. I never smothered a swarm. I have passed through all the stages of advance—through collaterals, nadirs, Pettigrew's, &c., until I reached the climax: not, I confess it (yet unattained), of Mr. Cheshire's ultimatum, but of what I have found both successful and profitable. Now being something more than a sexagenarian it might be deemed excusable that with veil and without spectacles I should mistake a new outside comb (not a month before a plain foundation, when filled throughout and sealed as white as any pure honeycomb) for the latter until a second glance showed me the difference; and I beg to inform Mr. Cheshire

that my former "puzzling" letter had reference to facts not seen through my veil, and that I maintain, as he himself admits, that plain foundation properly handled is as safe to use as any ingenious appliance can make it.—GEORGE A. PROCTER, *Clk.*

OUR LETTER BOX.

Red Game Bantams (*C. D. A.*).—The cock should be snake-headed; his wings carried up, and close to his body; tail moderate, and rather drooping than otherwise. The hen should be small-headed, straight-combed, with wings carried close. She should be very dark brown, almost black, with golden hackle. Both should be hard-feathered.

Gapes in Chickens (*O.*).—Your chickens are dying of the gapes, and have the roup as well. Give to each chicken a pill of camphor the size of a pea, and put some lumps of it in every vessel from which they drink.

Fixing Foundation (*J. B., Sandal*).—Your plan of fixing foundation fixes too much. If the ends are not left free the stretching which working out the sheet by the bees involves would cause it to assume a waved line. To prevent this, foundation sheets are cut about half an inch shorter than the inside of the frame. If you remove your worse than useless side supports your plan becomes an awkward form of Mr. Hooker's (for which see last issue), having also the disadvantage of occupying some space by wood instead of comb. There is plenty of room for ingenuity in these matters, but those who have no "practical" acquaintance with them are hardly likely to suggest better forms than those who have. Mr. Woodbury in his day was ahead of you, since he made the top bar to divide, by which he secured the advantages you claim, but escaped the defects we have pointed out.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51°32'40" N.; Long. 0°8'0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1880. August.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sun.	22	30.053	64.6	59.2	N.	64.0	75.0	58.0	124.0	55.8	—
Mon.	23	30.044	60.0	57.5	N.	63.2	70.5	52.3	98.0	48.7	—
Tues.	24	30.041	63.9	59.4	N.E.	62.5	73.6	51.7	114.4	49.2	—
Wed.	25	30.04	62.2	60.2	N.N.E.	62.6	69.7	55.1	81.5	52.6	—
Thurs.	26	29.887	66.2	63.4	N.N.W.	62.2	73.4	59.3	93.9	58.8	—
Friday	27	30.103	60.8	59.2	N.N.W.	63.0	73.3	59.3	95.3	58.0	—
Satur.	28	30.213	63.3	61.7	N.E.	63.0	82.6	60.2	124.6	60.6	—
Means.		30.049	63.0	60.1		62.9	74.0	56.6	105.2	54.8	—

REMARKS.

22nd.—Dull cloudy morning, fine bright afternoon and evening, beautiful moon-light night.
 23rd.—Dull cloudy morning, fine afternoon and evening.
 24th.—Rather cloudy and dull on the whole, though there was some sunshine in the afternoon.
 25th.—Dull, cold, and damp all day.
 26th.—Dull morning, cloudy afternoon and evening.
 27th.—Cloudy all day.
 28th.—Cloudy till 10.45 A.M., afterwards fine, bright, and very hot.
 — A dull cloudy week with remarkably little sunshine, excepting Saturday, which was a bright hot day, the maximum temperature (82.6°) being the highest registered during the year, with the exception of May 26th, when a temperature of 85.0° was reached. The drought which commenced on the 9th still continues.
 —G. J. SYMONS.

COVENT GARDEN MARKET.—SEPTEMBER 1.

GRAPES continue to arrive in large quantities from the Channel Islands, the supply of home-grown fruit being yet limited. Plums are very plentiful, realising moderate prices.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons	each	2 0 to 4 0
Apricots.....	box	1 0 2 6	Nectarines..	dozen	2 0 8 0
Cherries.....	½ lb.	0 0 0 0	Oranges	½ 100	4 0 12 0
Chestnuts.....	bushel	12 0 16 0	Peaches	dozen	3 0 10 0
Figs.....	dozen	2 0 4 0	Pears, kitchen ..	dozen	0 0 0 0
Filberts.....	½ lb.	0 8 1 0	dessert	dozen	2 0 3 0
Cobs.....	½ lb.	0 0 1 0	Pine Apples	½ lb.	1 0 2 0
Gooseberries ..	½ sieve	2 6 4 0	Plums	½ sieve	1 6 3 0
Grapes	½ lb.	0 9 3 0	Walnuts	bushel	0 0 0 0
Lemons.....	½ 100	6 0 10 0	ditto	½ 100	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms	dozen	1 0 to 1 6
Asparagus	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney....	½ lb.	0 0 0 6	Onions	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling	quart	0 0 0 9
Broccoli	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Peas	quart	0 9 1 0
Carrots.....	bunch	0 4 0 6	Potatoes	bushel	3 9 4 0
Capsicums.....	½ 100	1 6 2 0	Kidney	bushel	4 0 0 0
Cauliflowers	dozen	0 0 3 6	Radishes.... doz.	bunches	1 6 2 6
Celery	bundle	1 6 2 0	Rhubarb	bundle	0 4 0 0
Coleworts..... doz.	bunches	2 0 4 0	Salsify	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzoneria	bundle	1 6 0 0
Endive	dozen	1 0 2 0	Seakale	basket	0 0 0 0
Fennel	bunch	0 3 0 0	Shallots	½ lb.	0 3 0 0
Garlic	½ lb.	0 6 0 0	Spinach	bushel	3 0 0 0
Herbs	bunch	0 2 0 0	Turnips	bunch	0 4 0 0
Leeks.....	bunch	0 0 4 0	Vegetable Marrows	each	0 2 0 0



9th	TH	Towcester Horticultural Exhibition.
10th	F	Paisley Horticultural Exhibition.
11th	S	Sale of Bulbs at Mr. J. C. Stevens' Rooms, Covent Garden.
12th	SUN	16TH SUNDAY AFTER TRINITY.
13th	M	[International Potato Exhibition.
14th	TU	Entries close for Messrs. Suttons' and Carter's Prizes at the In-
15th	W	Brighton Horticultural Exhibition.

LIFTING OLD VINES.

ANY gardeners are under the impression that old Vines are of no use, but only fit for the rubbish heap. I am quite aware that many old Vines are apparently in that condition, but some of them at least, I think, can be renovated. I have seen many Vines worn out at twelve years of age, and others not worn out at forty or fifty years of age. The reasons are easily told—overcropping, and not giving proper attention to the borders. But, it may be observed, there are Vines more than half a century old which bear large crops of good fruit annually, and yet have very little care bestowed on the borders. The reasons are, that the natural soil is very good or the roots are working in a drain, while the rods have not been over-weighted with fruit. I believe that if the natural soil is not good for Vine-growing the borders require renewing every twelve or fourteen years, and if they are both inside and out the work can be easily done without losing any of the crop.

The Vines here are between fifty and sixty years of age, and were in a miserable state when I entered on my duties thirteen months ago. All gardeners who saw these weak and scraggy examples said they were worn out and would never come to any good. But my employer not desiring to have fresh Vines, there was no alternative but to lift the roots, and that work was commenced at once. The borders were inside and out, not a root could be found within 3 feet from the surface in the outside border, and those were few and as black as burnt sticks, destitute of fibres. The crop was cut as soon as possible, and we commenced lifting the roots towards the end of September whilst the foliage was on the Vines. The weather at the time was dull, so that it was seldom necessary to shade the roof; had the weather been bright shading would have been imperative.

We commenced with having a quantity of turf cut about 3 inches in thickness, and to every cartload was added one bushel of inch bones with a good sprinkling of old lime rubbish and chareoal dust; but it was mixed as the border was being made, as the soil was used in turves. We cut a trench 7 feet from the Vine stems to the depth of the border, and worked the soil back from the roots. It was very tiresome work, the soil being very hard and stiff quite to the stems of the Vines. As the soil was removed from the roots they were covered with damp mats. No more soil was removed than could be replaced in a day. We placed at the bottom 18 inches of brick rubble sloping to the front, then a layer of turves with the grass downwards, and built a wall of turf at the outside. The

border was filled up to within 10 inches of the top, when the roots were laid out, the ends being cut clean with a sharp knife, and the roots notched at intervals. They were then covered with 10 inches of the compost, having it rather fine about the roots.

The house was closed when we commenced operations, and kept so for about three weeks, and the Vines were syringed three times a day. Air was afterwards admitted freely, and with the help of a little fire heat the Vines ripened their wood and foliage well. The inside border, in which there were a few roots, was kept moist during the winter to keep these roots fresh. The outside border was protected with straw during the winter.

When the Vines were pruned they were cut to the best buds. The Vines were started gradually the second week in February, and broke evenly and well. After they had made 6 inches of growth they were kept at 55° as a minimum and 60° as a maximum temperature, so as not to exhaust the rods of their stored-up sap. About this stage they commenced to emit clusters of quill-like rootlets from the old roots, which had callused over in the autumn. The shoots were not stopped till they had produced five joints beyond the bunch, and the top shoots were allowed to extend freely. At this time the inside border was kept well supplied with liquid manure.

We left a good number of bunches on the Vines as we could not lose a crop. The result is, that the berries have swelled to a much larger size than they were before, and the new border is full of roots for future work. These roots are on the top of the border, which was watered as required, and the inside borders have been well supplied with liquid manure. On two Vines young canes had been run up previously, and the old rods were cut out at pruning time. These young canes did not show fruit so well as the old rods, but the bunches and berries are much larger and better coloured. Although we lifted the Vines we have not only not lost a crop, but have, on the contrary, secured one far superior to that of last season, and we have a supply of well-finished and good family Grapes.—A SOUTHERN GROWER.

[We saw the Vines referred to last year, and they were indeed "miserable." We have seen Grapes produced by the Vines this year, and they are excellent. We congratulate our correspondent on his well-earned success.—EDS.]

POPULAR GREENHOUSE FLOWERS.

CINERARIAS AND CALCEOLARIAS.

ALTHOUGH there is an abundance of what are generally termed florists' flowers, and annuals more or less suitable for culture in pots, the number of really popular and serviceable kinds is somewhat small. With this limited selection, however, it is really remarkable what a display can be maintained all the year round with but poor convenience for the work, and at a comparatively small outlay. At the present time we have Balsams, the strains of which are now of the best description. Coekscombs, Celosias, and Torenia Fournieri in the way of annuals; Zonal Pelargoniums, both single and double flowering, many of which produce immense trusses; and Fuchsias in bountiful variety, with a good batch of Gloxinias and tuberous-rooted Begonias. These relieved with a few Ferns, Selaginellas, and spring-sown Panicum plicatum form a cheap and very effective display, while the

requirements of the plants are of the simplest description. Later on the young *Cyclamens*, Chinese *Primulas*, *Browallia elata*, *Salvia splendens*, Zonal *Pelargoniums* kept denuded of bloom and well exposed to the sun at the present time, *Chrysanthemums*, and late *Fuchsias* will be in beauty. To follow these there will be the old *Cyclamens*, earliest-flowering *Cinerarias*, and *Salvias*. These will be succeeded by late *Cinerarias*, *Primula amoena*, *P. verticillata*, *P. japonica*, and others of the hardier kinds; the earliest of the large-flowering or stage *Pelargoniums*, *Calceolarias*, *Carnations*, *Spiræa japonica*, Alpine *Auriculas*, and others. Then comes in the main batch of *Pelargoniums* and *Calceolarias*, more *Spiræas*, Zonal *Pelargoniums*, *Lobelias*, and Harrison's Musk, which carry on the display till the *Fuchsias* and other previously mentioned plants are in again. I am aware that this list is far from being complete, but the object of these notes is to show what can be inexpensively done with the aid of but little fire heat.

Where there is a conservatory to be kept gay, with a number of plant houses and pits in which to grow the requisite supply, the process of plant-growing is much simplified, but with the majority, and probably the most enthusiastic of cultivators, house room is generally of very limited extent. Yet, strange to relate, it is generally in comparatively small places that florists' flowers are to be met with in the best condition. Some of these growers have their specialities, others endeavour to grow all kinds of plants well. One instance of the latter—I could give several—I will mention by way of illustration. Visit when I will a hardworking friend of mine, there is invariably much to admire in the way of florists' flowers, all being done with the help of a small plant house, a small vinery, two pits, and a few frames, which in addition have to do duty in the way of growing Melons and Cucumbers and the raising and wintering plants for the kitchen and flower gardens. The majority of the above-mentioned plants are grown, and in addition a few *Azaleas*, *Deutzias*, *Liliums* in variety, and *Vallota purpurea*. One great secret of this gardener's success is, that he works all the principal kinds in batches throughout, the plants thus receiving the requisite fair treatment, not being drawn up by and smothered with insects, oftentimes in undisturbed possession of the more advanced of the flowering plants. A varied arrangement is no doubt most pleasing to the non-professional, but the true florist prefers having his favourites massed together, and can see plenty to admire in the various forms, markings, and colours of the varieties. Where the batch system is practised, one kind has frequently to be turned out before it has really collapsed in order to make room for a successional kind, but it is often really imperative that this apparently sacrificial act should be performed, and florists' flowers too after they have reached a certain stage soon become unsightly and dirty.

Of the various kinds above mentioned, probably with one or two unimportant exceptions, *Cinerarias* and *Calceolarias* are the most impatient of fire heat, eodding, and mixing with other plants, especially when growing. Of the two the former are by far the most serviceable, and are besides remarkably showy, but not so conspicuously so as *Calceolarias*. The treatment necessary for both is almost identical, the principal difference being in the time of sowing, as the *Cinerarias* are sown at different times from April till the end of July, whereas August and even early September is early enough for the *Calceolarias*. It is possible to err by too early sowing in both instances, as to have the plants in perfection they must be kept steadily growing on from the time the seed germinates; and any check experienced, whether from becoming rootbound in the earlier stages of growth, or being too dry or too wet at the roots, if not fatal in effect will at all events be the precursor of an attack of red spider in the case of the *Calceolarias* and green fly on the *Cinerarias*. It will be found no easy matter to dislodge either of these pests when once established. Bright sunshine and a dry base, such for instance as the shelves and staging of a greenhouse, are injurious to both species, especially in the earlier stages of growth. A shallow frame on a bed of ashes, either at the north side of a wall or sloping northwards, will be found suitable; and when the plants are transferred to the greenhouse they should be placed on either a slate or a gravelled bottom, and only sufficient fire heat given to keep out the frost, or occasionally to prevent damping from excessive moisture.

It is now too late to make a sowing of *Cineraria* seed, as the plants obtained would not attain to a serviceable size. This is not the case, however, with *Calceolarias*, as if a sowing of these is made at once good-sized plants may be had from it for flowering next May. Those who may have plants of the former, or later on of the latter, either in seed pans, pans of pricked-out plants, or self-sown in the open, will do well to pot them off before they have become drawn and weakly, employing pots of a size so as to

avoid cramping the roots. The weakest plants potted into 3-inch pots should, when these are well filled with roots, be shifted into 5-inch pots, and the strongest potted into 4-inch pots be shifted into 6-inch pots, the latter being a very serviceable size in which to flower them. If larger plants are required some of the best of each lot may be shifted on into 8-inch or 9-inch pots respectively. Clean well-drained pots should be employed in every instance, especially at the final shift, and it is very important that the operation of repotting be performed before the plants have become much rootbound, otherwise premature flowering will be the result, much labour thus being lost.

A suitable compost consists of two parts of turfy loam made somewhat fine for the small pots, afterwards broken up roughly; one part of leaf soil, with an addition of well-decomposed cow dung finely broken; failing this other decayed manure may be used—road grit or silver sand, and a sprinkling of small pieces of charcoal. This mixture of certain kinds of soils is given as being suitable, but it is not absolutely necessary to adhere strictly to it, as very good *Cinerarias* are not unfrequently grown by those who are unable to procure turfy loam. Where such loam cannot be had it is very advisable to use more leaf soil, say two parts to three of the ordinary loam used, and also charcoal in good quantities, and failing this broken crocks. Drain the pots most carefully, commencing with a big crock over the hole, next placing a layer of coarse pieces round this, over which more finely broken crocks, and finishing off with a thin layer of moss. When potting place a layer of the roughest soil over the drainage, over this a little finer soil; work the soil evenly round the ball, and make it moderately firm, and finish off evenly, the centre being slightly the highest, and filling the pots only so far as to allow the depth of the rims for watering space. Very dry soil should not be used, as afterwards it is moistened with difficulty; neither should wet soil be employed, as this is apt to go together too closely. It is also very important that the balls be in a moist state when repotted, as if very dry it is impossible afterwards to moisten them without saturating, and subsequently souring the fresh soil. Care should be taken not to injure the roots when removing the old drainage, and also not to crack the very brittle leaves during the operation of potting.

When the plants are returned to the frames after each operation a watering should be given them, using a fine-rose pot and tepid water, and the frame should be kept somewhat close till they are re-established, afterwards giving air freely. Crowding the plants is especially injurious; every plant ought to be clear of its neighbour, as nothing shows off the bloom better than healthy unbroken foliage. If the plants have to remain in the frames till nearly their flowering times it is very advisable that they be placed on inverted pots, the ashes about them occasionally freshened by raking, water be given carefully without any splashing about, and air given freely on all favourable occasions. Frost must of course be carefully excluded. Occasional mild fumigations with tobacco will keep the plants free from green fly, and when near their flowering time they will be materially assisted by alternate waterings with liquid manure. If large plants of *Calceolarias* are required the growths may be pinched once or twice. Do not, however, pinch those plants that are to flower in small pots, nor the *Cinerarias*, whether in large or small pots. *Calceolarias* require their bloom heads to be lightly supported with sticks.

To ensure the germination of *Calceolaria* seed, first fill well-drained pans or pots with soil consisting of equal parts fine loam and leaf soil with some sand, make this firm and lightly cover with sand, then water through a fine rose, and in the course of about six hours sow the seed thinly and evenly, press it into the sand, and lightly sprinkle a little more sand over it. Select a cool shady place, place the pan on a bed of ashes under a handglass, or cover the pan with a square of glass until the seedlings appear, which they should be before any water is required. Do not water the seedlings overhead, but moisten the soil by dipping. As soon as the plants are large enough to handle prick them out about 2 inches apart in pans or pots, using soil similar to that in which the seed was sown, again place them under handlights, afterwards treating them as advised above.—W. IGGULDEN.

TOMATO CULTURE.

I WAS much pleased to see, on page 179 of the *Journal of Horticulture*, the advocacy of the extended cultivation of the Tomato taken up by so able a pen as that of Mr. Iggulden. There is no doubt that the relish for the Tomato is rapidly extending, but, perhaps, is more the result of the palate becoming accustomed to them, or I might say educated (for the relish for Tomatoes is certainly an acquired taste), than from the introduction of superior

varieties, although there has been a great advance in that direction of late years.

That the plants should be grown as single stems and disbudded of all laterals cannot be too often or too strongly impressed upon those who are about to start for the first time their cultivation.

As illustrating the results of the practice advocated by me in the Journal during the spring, I had thought of sending to the Editors a sample of those grown out of doors with all laterals removed, and I cannot do better than do so at the present time, when the subject has been so well treated by Mr. Iggulden.

The sample sent is one of fifteen plants trained diagonally at an angle of 40° against a low wall, and from which we commenced gathering ripe fruits in July. The whole of the plants are equally good with the sample sent, which is a portion of the plant. The lower part having yielded its fruits has been removed, also the top with but recently set fruits. The fruits are not so fine as those in the houses, but my object is to show that it is not necessary to stop Tomatoes after the first three or four trusses are set to insure a crop of ripe fruits out of doors in ordinary summers, although it is beneficial when, owing to bad seasons or other causes, the energy of the plant might be wasted for supporting late fruit that has no chance of coming to maturity.

The variety sent is a seedling of my own, which I have grown exclusively for outdoor purposes for several years.—R. CROSSLING.

[It is evidently a very useful variety. The fruit is large, rather corrugated, and terminates with a blunt apex—is, indeed, of almost the exact form of the Custard Vegetable Marrow. The crop is a heavy one—quite a rope of fruit, and admirably illustrates the value of the system of culture above indicated.—EDS.]

VIOLET ARGENTEAFLORA AND OTHERS.

THROUGH the courtesy of Mr. Lee, who sent me a bundle of plants in the spring, I have also been able to test the merits of his new Violet *Argenteaflora*. Like Mr. G. Abbey I have found it a continuous summer bloomer. Of course the quality of the flowers is not what one would be satisfied with in the spring. Still they are fairly good and very sweet and acceptable, coming as they do at a time when the scent of a Violet is a luxury often unattainable. *V. odorata pendula*, or New York, is the only other variety known to me from which one can generally gather a few sweet if not very presentable blooms even in summer.

Everyone who loves Violets and can spare a frame for its accommodation should grow this fine variety. Now is the time to make preparations for a supply of these delicious flowers through the autumn, winter, and spring. I find that it does better planted out in a cold frame than in any other way. The situation should be sheltered and slope slightly towards the south, so that every ray of the winter sun can be caught. The soil should be rich and light. If that universally recommended commodity, well rotted manure, can be incorporated with it so much the better. Chimney soot is also useful, and keeps away the worms. Take up the plants with a ball early in September and plant them in rows about 8 inches apart. Give a good watering, shade for a few days if the sun is hot, and they will at once make themselves at home and begin to bloom as if nothing had happened. New York will give you a good crop of fine flowers before the lights need be put on, which should be in October. Very little water is needed in winter, and as much air should be given as possible whenever there is no frost. After the first of the autumn bloom is over there will probably be a slight break in the supply, but New York even in the depth of winter never ceases blooming altogether, and in February comes again with a rush in all its soft splendour. My long frame last spring was very beautiful. The remembrance of it is a joy to the present time, and animates me in my present endeavour to secure a similar treat in the coming season. Few who have not seen it have any idea of the beauty and size to which a well-grown Violet attains.

The general run of the blooms of New York in spring are as large as a florin, perfect rosettes of a rich lovely mauve colour with white and red eye. I grew also a frame of *Belle de Chatenay*, with which I am delighted. This fine double white Violet is not an autumn or winter bloomer, but in spring I have found it to be more than equal to the raiser's description. I gathered many specimens which more than covered a halfcrown; they were pure white, and had the appearance of small white Roses. Each flower was sufficient for a buttonhole. I do not mean to say that every bloom is up to this mark; what flower is there that does not produce many inferior specimens for one good one? But this Violet produced last spring an abundant supply of good flowers, many of them magnificent, of the kind described. I have grown it ever since it came out. It must have the protection of a frame to do its best.

La Reine is also good with the same treatment, but the white is tinted with a dull purplish colour, which rather spoils its appearance.

Of the singles I can strongly recommend *Victoria Regina* and *Odoratissima*. These do well without any protection here.—R. W. BEACHEY.

THE FRUIT CROPS.

THIS year many fruits are sadly deficient with us, notably Apples, Pears, Walnuts, Filberts, Peaches, Nectarines, and standard Plums. Strawberries were a heavy crop, but many of the finest fruits were spoiled by the wet weather. President, Marguerite, and Sir Joseph Paxton were the most productive varieties of several grown here; and it may be noted that the oldest plantation (nine years) was the most productive, although I am aware that in some soils, particularly shallow light loam resting on gravel, Strawberries are nearly useless after three successive years' cropping. Marguerite is a first-rate variety, and I should advise anyone who has not grown it to give it a trial.

Raspberries, Red and Black Currants, and Gooseberries were excellent crops. The practice of mulching with well-decayed manure over the roots of the trees I believe to be a good practice. Plums on walls are a good crop, especially Kirke's Blue, Coe's Golden Drop, Jefferson's, Greengage, Victoria, and Orleans, but there are scarcely any on bushes or standards, with the exception of Diamond (a handsome Plum) and the Prune Damson. Anyone making a new plantation of Plum trees will find the last-named an excellent variety, and more reliable for bearing than many. The last three seasons old trees of this variety have been heavily laden with fruit. It is also an excellent plan to place a covering of decayed manure 3 inches in depth over the roots of these apparently old trees, so that the rains may wash the nutriment down to them.

Apricots have been an excellent crop here. More fruit has been taken from the trees this season than in the three preceding seasons together. The trees are on south and west aspects, but were equally good. When the fruit is all gathered the trees are examined, the dead wood cut out, all misplaced shoots and those not wanted are removed; those remaining that are required to keep up a supply of bearing wood are nailed in their full length, except at the top of the tree and where there is not room for extension, allowing plenty of room and light for each shoot. If the thinning-out is done with judgment the trees will neither require pruning or nailing in winter or the early spring months. Young shoots of Apricot trees that I saw nailed-in to the wall and pruned in the cold weather two and a half years ago were nearly all dead the following summer. That taught me to touch the trees as little as possible during the winter time, but to prune and regulate the trees after the fruit was picked. The short natural spurs produced are best left, as these often produce the best fruit, which ripens the earliest. If very few bees are about at the time of wall trees flowering, the syringe with a fine rose attached is employed for sprinkling the trees once or twice in the middle of the day. I think it helps to scatter the pollen grains.

Peach and Nectarine trees are a complete failure; the two past sharp winters with cold springs and with last year's unripened wood has left the trees in a sad plight. Some were killed outright—young newly planted trees as well as old trees. Of the young trees two varieties are worth noting as having withstood the climate better, and that is Barrington and Crawford's Early Peach. The last-named is an excellent, early, and handsome Peach. The only Nectarine I have with any fruit on is Hunt's Tawny.

Apples showed a plentiful bloom, but not one tree in twenty bears what can be termed a crop. Codlins that did not bear any or very little last year are good this. Hollanden Pippin is good, and has been so for the past three seasons, and a very useful Apple it is for dessert, lasting (if enough of them) two or three months—from November to the end of January. Ribston Pippin is scarce both on old and young trees. An Apple called Nonsuch has borne well the last two or three seasons as a bush. Nearly all kinds of Pear trees were deficient in bloom, consequently there is no fruit on them worth speaking of. Jargonelle has borne well against a south wall, and is in use at the present time. Doyenné d'Été is the best early Pear we have, being in use at the end of July or beginning of August, and very constant in bearing. Passe Colmar is bearing well this season, as it did last, against a wall with a south aspect. Williams' Bon Chrétien, Duchesse d'Angoulême, Autumn Bergamot, Forelle, Beurré Bose, Beurré Diel, and Winter Nelis have very little fruit. Culinary Pears of Catillac and Uvedale's St. Germain are a thin crop.

Cherries, particularly Morellos, have a full crop, but the trees were very much affected with aphides early in the season; the

east winds prevailing so long when they were making their young growth checked it, and made it an easy prey to insects.—A. HARDING, *Orton Hall, Hunts.*

TROPÆOLUM SPECIOSUM.

I OBSERVE from a note (page 212) that this fine *Tropæolum* is growing and flowering freely at Richmond, and it is such a lovely plant that I daresay all who see it will desire to grow it. I have often found it most difficult to grow well. I have had plants direct from Scotland, and at the present time I have not one of them, all having started into growth feebly and then died. This has happened to plants in pots and beds alike. Why I cannot tell. I have grown it successfully elsewhere, but the soil here is lighter and hotter, and probably this is the cause of their failure. I should say a cool rather heavy soil, and a cool atmosphere, suits it best.—M. M.

THE NATIONAL EXHIBITION OF FRUIT AT THE ALEXANDRA PALACE.

SEPT. 3RD TO 7TH.

THIS, the chief Exhibition of the year solely devoted to fruit, was opened on Friday last, the entries being sufficiently numerous and the quality such as to constitute it a decided success. In a schedule of thirty-three classes, only three, comparatively of little importance, were unrepresented, and of the total amount offered in prizes—viz., £160, more than £130 was awarded. In some classes the entries were numerous, and altogether the competition was fairly spirited, the result being a generally satisfactory display. The arrangements were carefully and efficiently carried out under the superintendence of Mr. J. Forsyth Johnson, the only matter that seemed to require any alteration being the method of removing the prize cards to write the names of the winners upon them. Had the system followed by the Royal Horticultural Society's officials been adopted it would have facilitated the work and reduced the possibility of mistakes occurring in affixing the awards to the exhibits.

Collections of Fruit.—As was indicated in a note at page 212 of the Journal last week, the chief class provided in the schedule, as regards the money value of the prizes, was that for twenty varieties of fruits; £15, £10, and £6 being offered respectively as the first, second, and third prizes. We felt somewhat curious to see with what different interpretations the exhibitors would accept the wording of the schedule which did not restrict the number of varieties of one kind to be staged in a collection. Four competitors appeared, all staging good examples of the most important fruits, well selected and fairly answering what was probably the object of the class—viz., a diversified and representative collection of the chief kinds of fruits in general use. The coveted position of first was accorded to Earl of Harrington (Mr. J. H. Goodacre), who had excellent samples of fruit; but Grapes were represented by no less than six varieties which, had they not been of such good quality, would have somewhat injured his chance of success, especially as at least one of the competing collections contained more diversity combined with general good quality, though not sufficient to counterbalance the merit of the Grapes in Mr. Goodacre's exhibit. Taking these first, the following were the varieties shown:—Canon Hall, bunches of moderate size, berries large and fairly ripe; Gros Colman, neat bunches, fine berries, and well coloured; Muscat of Alexandria, large bunches in excellent condition; Black Hamburgh, berries not of great size, but admirably coloured, and the bunches of useful size; Foster's Seedling, good even bunches, berries a trifle small but fairly ripened; and Venn's Black Muscat, good bunches, bearing fine bloom. Pine Apples were represented by an unnamed fruit of moderate size, but well ripened, and a handsome example of Pernambuco. Three varieties of Peaches were shown—namely, Late Admirable, of good size and colour; Princess of Wales, large and of rich colour; and Bellegarde, equally good. Dishes of well-ripened Jargonelle Pears, Ischia Figs, Moorpark Apricots, McLaughlin's Gage Plum, fine; and Morello Cherries, excellent, were also noteworthy. Two Melons, one Miles' Victory of Bath, and the other unnamed, but both in fair condition, with Victoria Nectarines of moderate quality, completed this collection. Mr. George Sage, Ashridge Park Gardens, Great Berkhamstead, followed closely, the merit and diversity of his exhibits clearly entitling him to that position. The collection comprised good Black Alicante and Foster's Seedling Grapes; Scarlet Gem, Eastnor Castle, and The Squire Melons, the latter of great size; Elrue Nectarines, beautifully ripened; a magnificent bunch of ripe Bananas (*Musa Cavendishii*); a neat Smooth Cayenne Pine Apple; Morello Cherries, of good size; Goliath, White Magnum Bonum and Kirke's Plums, all good; Moorpark Apricots; handsome Royal George Peaches; ripe Brown Turkey Figs; a fine dish of Filberts; Kerry Pippin Apples, neat; White Dutch Currants, a dish of Bigarreau Cherries, and fruits of the edible Passion Flower (*Passiflora edulis*), which are very rarely seen at exhibitions. The

third prize was awarded to Mr. John Austin, Ashton Court Gardens, Bristol, who staged some well-grown fruit, but the collection was not sufficiently good all round to entitle it to a higher position. The most noticeable of the exhibits were Exquisite Peach, very fine, grandly coloured, and well meriting its name; Morello Cherries, large; Rivers' Plum, good; Ashton Hybrid Melon, finely netted; and Brown Turkey Figs, well ripened. In the smaller class for ten varieties, though prizes of £6, £4, and £2 were offered, only three competitors appeared, the chief position being secured by Lord Carington, Wycombe Abbey, (Mr. Miles), with Muscat of Alexandria and Black Hamburgh Grapes in fair condition, especially as regards the bloom; Golden Gem and Read's Scarlet flesh Melons, very well coloured; Morello Cherries, good; Pine-apple Nectarines, Barrington Peaches, fine; Charlotte Rothschild Pine Apple, of good size; and a fine dish of Kirke's Plum. Mrs. Lambert, Sandhill, Bletchingly (Mr. C. Goldsmith), obtained the second prize with fruits but little inferior to the first in the majority of the varieties staged. A bunch of Black Alicante Grapes was particularly fine, the size, colour, and bloom being admirable; Read's Scarlet-flesh Melon and Pine-apple Nectarines were also of more than ordinary merit. Third honours were awarded to the Earl of Ellesmere, Worsley, Manchester (Mr. W. P. Upjohn), for good examples of Brugnon Nectarines, richly coloured; and Raisin de Calabria, Venn's Black Muscat and Black Hamburgh Grapes, of fair size but not very well finished.

Grapes.—These were well represented in numbers, and several examples of exceedingly good quality were also staged. Seven classes were devoted to them, and over forty collections were entered in competition, the contest in some classes being very keen. In that for five varieties, one bunch of each, there were seven entries. W. Just, Esq., Eastham, Cheshire (Mr. McMaster), being first with magnificent Grapes that were greatly admired for their size and superb finish. The varieties were Buckland Sweetwater, grandly ripened, neat bunch, and beautiful colour; Madresfield Court, excellent colour; Muscat of Alexandria, large bunch and berries; Black Alicante, superbly coloured, bunch fine; and Mrs. Pince's Black Muscat, very handsome. The Baroness L. de Rothschild, Gunnersbury Park, Acton (Mr. J. Roberts), secured the second prize also with highly meritorious fruit, Madresfield Court, Foster's Seedling, and Muscat Hamburgh being very fine; the other varieties were Black Hamburgh and Muscat of Alexandria. Mr. Miles took the third position with neat bunches, but not so well finished as in the other two collections—Lady Downe's, Foster's Seedling, Black Prince, Trebbiano, and Black Hamburgh were the varieties. For three bunches of Black Hamburgh Grapes there were seven competitors. Messrs. Miles and J. Roberts were first and second respectively with fine bunches, well ripened and coloured; the two lots being very close in quality, but the berries in the former collection were slightly the larger. Mr. John Gadd, Thornden House Gardens, Brentwood, was third with creditable bunches of a fairly good colour. The class for three bunches of Muscat of Alexandria was a comparatively strong one, eleven competitors entering. The general quality was not so satisfactory as might have been desired, but very fair examples were staged in the three winning collections from E. C. Glover, Esq., Highfield House, Leek (Mr. C. Roberts); J. Atkinson, Esq., Gunnersbury House, Acton (Mr. J. Hudson); and H. J. Ashton, Esq., Bishopsgate House, Staines (Mr. P. Feest), who were first, second, and third respectively. For three bunches of any other white variety, among nine competitors, Mr. J. Roberts secured the chief prize with Foster's Seedling, fine even bunches, remarkably well ripened and of excellent colour, one bunch being particularly notable in that respect. Mr. G. Sage followed also with that variety, which though of good colour was not quite so even and neat. Mr. McMaster was third with Buckland Sweetwater, bunches and berries of good size. There were eight entries in the class for three bunches of any black variety of Grape except Black Hamburgh, and at least two collections were exceptionally fine—namely, the Madresfield Court from Mr. J. Roberts, and the Black Alicante from Mr. McMaster, for which first and second prizes were awarded in the order mentioned. These Grapes were nearly equal in merit, but the great size of the berries combined with the finish of the Madresfield Court secured the chief award to Mr. Roberts, but the bunches of Black Alicante were of such fine size and grand colour, with large berries, that it was scarcely possible to find a fault in them. D. P. Bell, Esq., Clive House, Alnwick, obtained the third prize for three neat well-coloured bunches of Alnwick Seedling. In the classes for the heaviest bunches of black and white Grapes the exhibits were unsatisfactory, and the first prize was withheld in both cases. There was no entry in the class for ornamental baskets of Grapes.

Pine Apples.—These were not very numerous, but several handsome fruits were staged. In the class for three fruits of the Queen variety the only exhibitor was Mr. J. Roberts, who well deserved the first prize which was awarded to him. One large, even, and beautiful fruit weighed 6 lbs.; and the others, also of excellent shape, were 5 lbs. 7 ozs. and 5 lbs. 1 oz. respectively. For one Smooth Cayenne Pine Apple chief honours were obtained by Earl Fortescue, Castle Hill (Mr. D. Wilson), with a fruit of good size and very symmetrical, weighing 6 lbs. 13 ozs.; C. R. M. Talbot, Esq., Margam Park, Glamorganshire (Mr. J. Muir), being second with good and finely-formed fruit. In the class for one fruit of any other variety Mr. D. Wilson carried off the chief prize with a handsome example of Charlotte Rothschild, good shape and large pips; Mr. Miles followed with a

fine but unnamed fruit. Mr. D. Wilson obtained an extra prize for six Smooth Cayenne Pine Apples of excellent quality.

Peaches and Nectarines.—These were well represented in the two classes devoted to them, there being nine exhibitors of the former and eight of the latter. For a dish of twelve Peaches R. Leigh, Esq., Barham Court, Maidstone (Mr. C. Haycock), was placed first with handsome, large, finely-coloured fruits of *Violette Hâtive*, which were very creditable to the exhibitor. Captain Jackson, Meopham, Kent (Mr. R. Phillips), was awarded the second prize for *Reine des Belges*, of fine colour and good size; W. R. Winch, Esq., North Mimms Park, Hatfield (Mr. J. Seymour), being third with large examples of *Salwey*. In the corresponding class for Nectarines C. H. Firth, Esq., Riverdale, Sheffield (Mr. D. Abbott), secured the chief award, a dish of *Victoria*, very large and well coloured. R. C. Naylor, Esq., Hooton Hall, Chester (Mr. Hanagan), followed with neat highly coloured fruits of the variety *Pine Apple*; Mr. J. Gadd taking third for *Elruge* of fair quality. Apricots were only represented by three collections, first, second, and third prizes being secured by Lord Ebury, Moor Park (Mr. Mundell), Mr. Goodacre, and Mr. G. Sage.

Melons.—Two classes were devoted to these—namely, one to green-fleshed and the other to scarlet-fleshed varieties; about forty fruits were exhibited, nearly equally divided between the two classes, and presented a formidable task to the Judges. The prizes for a single fruit of a green-fleshed variety were obtained by Mr. J. Gadd with a well-ripened fruit resembling *Bromham Hall*, with a fair example of which variety Mr. P. Feest secured the second prize. Mr. H. A. Mann, St. Vincent's Lodge, Grantham, was third with an unnamed fruit of average merit. The general quality of the unsuccessful exhibits in the class was not of great merit. Mr. J. Muir was first with a scarlet-fleshed Melon, very good in form, well ripened, and finely netted; Mr. C. Goldsmith was second with *Scarlet Gem* of good quality; and Mr. Miles was third with *Read's Scarlet-fleshed*, fairly well ripened. Figs were few and not first-rate, Mr. G. Sage was accorded the second prize for a dish of *Brown Turkey*. Plums were similarly deficient, Mr. Miles taking the first prize for fair examples of *Magnum Bonum*.

Pears.—Three classes were provided for Pears, and although the entries were not very numerous the quality was fairly good for the season. In the class for a collection of Pears, to include six fruits of each variety, C. Hardwick, Esq., Hollenden, Tunbridge (Mr. G. Goldsmith), was first with forty dishes of as many distinct varieties, some of the fruits being of good size. The following were the most noteworthy:—Williams' *Bon Chrétien*, *Maréchal de Cour*, *Doyenné du Comice*, *Marie Louise*, *Chaumontel*, *Beurré d'Amanlis panachée*, *Glou Morceau*, *Beurré d'Anjou*, *Souvenir du Congrès*, *Beurré Clairgeau*, *Doyenné Boussoch*, *Bonne d'Ezée*, *Beurré Diel*, *Catillac*, and *Gansel's Bergamot*. Mr. G. de Faye, Jersey, was second with twenty dishes of fine Pears, including the following in excellent condition:—*Doyenné Boussoch*, *Beurré Diel*, *Beurré d'Été*, *Duchesse d'Angoulême*, *Louise Bonne of Jersey*, *Chaumontel*, *Marie Louise*, *Beurré Bachelier*, *Beurré d'Amanlis*, and *Glou Morceau*. Mr. P. F. Le Sueur, Jersey, was a good third with sixteen dishes of well-selected varieties. For a dozen *Jargonelle* Pears there were six entries, none, except the two winning collections, being of remarkable merit. Mr. G. Goldsmith was first with fruits of medium size, good shape, and fairly ripe; J. Fisher, Esq., Ebor House, Stamford Hill, N. (Mr. G. Hood), being second with fruits of good size, but not so ripe. Mr. G. Goldsmith was also first in the class for twelve fruits of any variety except *Jargonelle*, staging a dish of Williams' *Bon Chrétien* of moderate quality, Mr. G. de Faye following with the same variety, green, but large.

Apples.—There was a fine display of Apples both in the classes and not for competition, a very large number of varieties being represented by characteristic fruits. In the class for six varieties of baking Apples, six fruits of each, there were eight entries. Mr. C. Haycock was an admirable first with beautiful specimens of *Lord Derby*, *Washington*, *New Hawthornden*, *Lord Suffield*, and *Stone's Apple*. Mr. G. de Faye followed closely, *Emperor Alexander*, *Alfriston*, and *Beauty of Kent* being the best. Mr. Miles was third. There were fourteen entries in the class for twelve baking Apples of one variety, Mr. P. Le Sueur taking the first prize with very fine examples of *Incomparable*, Mr. J. Austin being second with *Lord Suffield* of fair quality. In the class for a collection of dessert Apples, six varieties, six fruits of each, Mr. Haycock was awarded first honours for handsome specimens of *Devonshire Quarrenden*, *Golden Pippin*, *Jefferson*, *Summer Golden Pippin*, and *Mother Apple*. F. Whitbourn, Esq., Loxford Hall, Ilford (Mr. J. Douglas), was placed second with a creditable collection, in which *Early Harvest*, *Kerry Pippin*, *Worcester Pearmain*, and *Gravenstein* were noteworthy. Mr. G. de Faye was third, three other exhibitors staging fair examples, but not sufficiently good to obtain them a place in the prize list. Messrs. C. Roberts and Miles were first and second with *Devonshire Quarrenden* in the class for dessert Apples fit for table.

Small fruits were represented by few collections. For a dish of Gooseberries Messrs. Sage and Goodacre were first and second respectively with *Warrington* in good condition. Mr. G. Goldsmith had the best dish of *Red Currants*, the variety being *Red Dutch*, while Mr. G. de Faye was the only exhibitor of *White Currants*. Messrs. Lane & Son, Great Berkhamstead, Herts, were the only exhibitors of four Vines in pots, and obtained the first prize for handsome specimens of *Black Hamburgh* and *Foster's Seedling* in vigorous health, and remarkably well fruited.

Tomatoes.—In the class for twenty-four Tomatoes of one or more varieties Mr. S. Castle, The Vineyard, King's Lynn, Norfolk, was awarded chief honours for a collection comprising twelve fruits of *Trophy* and twelve of *Improved Red*, which together weighed 14 lbs. The fruits were of good shape and fine colour. The same exhibitor staged twenty-four fruits of *Stamfordian* which weighed 21 lbs., but they were very coarse in form. Mr. Robert Farrance, Chadwell Heath, Essex, was second with fine even specimens of *Trophy*. Capt. Wingfield, Orsett Hall, Ilford, Essex (Mr. W. Iggulden), also exhibited a collection of very even and excellent fruits. There were six other exhibitors, thus constituting a very fair display.

Miscellaneous Exhibits.—These were numerous and attractive, the most important being the superb collections of Apples from Messrs. Veitch & Sons of Chelsea and Messrs. Paul & Son of Cheshunt, which were highly commended by the Judges. Messrs. Veitch exhibited more than a hundred varieties, well representing the best in commerce; the condition of the fruits as regards size and form was also excellent. Messrs. Paul had about fifty carefully selected varieties, several being exceedingly fine. The latter firm also contributed a number of cut Roses. Mr. H. Cannell, Swanley, Kent, sent cut flowers of *Tigridias*, *Asters*, and *Dahlias*, all in their customary fresh healthy condition. Mr. J. Gilkes, Wickham Nursery, Newbury, sent a collection of quilled *Asters*, very fine; Messrs. J. Cheal & Son, Crawley, Sussex, samples of Apples, Cucumbers, and Melons; and Mr. Boller a group of succulents. J. Southgate, Esq., Selborne, Leigham Court Road, Streatham (Mr. C. J. Salter), exhibited fruits of a seedling Cucumber named *Selborne Rival*, a cross between *Marquis of Lorne* and *Tender and True*. The variety was said to be very prolific, and was commended.

Nothing could exceed the courtesy of the officials extended to all who were in any way identified with this excellent Exhibition.

COOL HOUSE ORCHIDS.

A FEW years ago cool house Orchids were but little understood, and the prices were so high that they could only be obtained by few. They are now, however, within the reach of many, and of such easy cultivation that they could be accommodated in gardens of small extent where there is a greenhouse. They will do well in cold frames from the end of April until October where they could have the exact treatment they require—that is, plenty of water at the root, and abundance of air with moderate shade. I think it is not sufficiently known that many Orchids can be grown in a cool temperature, or they would be more generally met with. They are great favourites with most ladies and gentlemen, and have more attractions than most flowers, either in the forms or delicacy of colour in the flower or the sweet perfume many possess. To prove that some species will endure very low temperatures, I may mention that the temperature of our cool house frequently falls as low as 35° to 40° during winter, and on one occasion to 33°, and the plants were not injured in the least. Not that I recommend a temperature below 40°, but this is abundant for them, and far more likely to induce a vigorous growth and abundance of bloom than the usual temperature of many cool Orchid houses. Take for instance a cool species, and winter it in a temperature of from 60° to 70°, and then give it greenhouse treatment the following summer—it will scarcely move in growth. Plants so treated will rest for months in a temperature of from 60° to 80°, and commence growing in autumn in a temperature from 40° to 50°. This clearly proves that to obtain a vigorous summer growth the plants must be wintered in a proportionately low temperature.

It must be remembered that this class of Orchidaceous plants cannot endure strong sunshine while growing, yet the shading material employed should be moveable, so as to give the plants abundance of light. This I consider is a very important point in cool house Orchid culture. Air should circulate through the house night and day when the external atmosphere, will allow of it; they cannot endure a close confined atmosphere, nor take the same amount of water as if air is admitted freely. Watering should be liberally done on fine mornings before the sun has much power. The plants are watered overhead with a coarse-rose can, so that the bed of gravel the plants stand upon is thoroughly saturated also; this is repeated in the afternoon in very fine weather. During the season of growth too much water cannot be given, nor will the young growths damp with these copious waterings if ventilation is in proportion. Damping of the young growths is frequently caused by a close stagnant atmosphere. Some varieties are subject to one kind of insect more than another. For instance, *Odontoglossum Phalaenopsis* is subject to red spider; *O. Alexandræ*, *O. Pescatorei*, and many others of a strong constitution to thrips and green or yellow fly; while *O. grande* and *O. Insleayi* are affected with scale. The best preventive for all is abundance of water and air.

In potting, the pots should be clean and two-thirds filled with clean crocks, and the material employed should be well elevated above the rim of the pot. Good brown fibrous peat should be

used in a rough state, and mixed with equal quantities of sphagnum moss. The surface should be entirely covered with moss, the green ends being preserved for this purpose; it will soon grow rapidly if watered as directed. The best time to repot these Orchids is when the young roots have commenced growing from the base of the young growths, they soon establish themselves in the fresh compost. I am in favour of small shifts, for the plants do better when the roots reach the sides of the pots, and take water more freely than when large pots in proportion to the plants are used. There is but little fear of water stagnating about the roots of the plants if the drainage is perfect. The compost frequently becomes sour when inferior peat is used, and it is better to dispense with peat altogether if bad, for the plants succeed much better in crocks with a portion of sphagnum on the surface. Often good results are obtained by employing crocks, especially with plants that have become unhealthy and lost many roots. After considerable experience with imported Orchids, I find they always establish themselves better in crocks than in peat. Some kinds succeed best when suspended in baskets from the roof, especially such dwarf growers as *Odontoglossum Cervantesii*, *O. Rossii*, *O. Ehrenbergii*, *Epidendrum vitellinum majus*, and others of a similar habit. Other dwarf species do well on blocks with sphagnum, but I avoid blocks as much as possible, because they require more attention in watering during summer.

It is sometimes difficult to bring imported Orchids at first to this system of cultivation, because the great heat of the voyage often stimulates an untimely growth, which cannot be severely checked without injuring the plant. It must, however, be gradually adopted, and not till it is done shall we see some of the short, stiff, leathery growth, and rich purple-tinted stems we find in the imported specimens. We appear to aim at size, but it is not the standard of excellence in Orchids.

The following is a list of the cool house Orchids cultivated at Lee Hall:—

<i>Anguloa Clowesii</i>	<i>Oncidium crispum</i>
<i>Ruckerii</i>	<i>crispum grandiflorum</i>
<i>Ada aurantiaca</i>	<i>prætextum</i>
<i>Cœlogync cristata</i>	<i>cucullatum</i>
<i>corymbosa</i>	<i>cucullatum majus</i>
<i>barbata</i>	<i>scrratum</i>
<i>corrugata</i>	<i>nubigenum</i>
<i>speciosa</i>	<i>flexuosum</i>
<i>Epidendrum vitellinum</i>	<i>auriferum</i>
<i>vitellinum majus</i>	<i>spilopterum</i>
<i>syringothyrsus</i>	<i>Rogersii</i>
<i>Odontoglossum Alexandræ</i>	<i>varicosum</i>
<i>blandum</i>	<i>pelecanum</i>
<i>cirrhum</i>	<i>cheiroporum</i>
<i>Cervantesii</i>	<i>tigrinum</i>
<i>Cervantesii decorum</i>	<i>pubes</i>
<i>coronarium</i>	<i>ornithorhynchum</i>
<i>cordatum</i>	<i>Lælia majalis</i>
<i>Dawsonianum</i>	<i>autumnalis</i>
<i>Ehrenbergi</i>	<i>albida</i>
<i>Egertonii</i>	<i>anceps</i>
<i>grande</i>	<i>Leptotes bicolor</i>
<i>gloriosum</i>	<i>Lycaste Skinneri</i>
<i>Hallii</i>	<i>cruenta</i>
<i>Insleyi</i>	<i>Mesospinidium sanguineum</i>
<i>Insleyi leopardinum</i>	<i>Sophranites cernua</i>
<i>Lindeni</i>	<i>grandiflora</i>
<i>Lindleyanum</i>	<i>Masdevallia amabilis</i>
<i>maculatum superbum</i>	<i>igneæ</i>
<i>madrense</i>	<i>igneæ splendens</i>
<i>maxillare</i>	<i>igneæ violacea</i>
<i>nebulosum</i>	<i>coccinea</i>
<i>nebulosum candidulum</i>	<i>Lindeni</i>
<i>pardinum</i>	<i>Veitchii</i>
<i>pulchellum</i>	<i>Davisii</i>
<i>roscum</i>	<i>sanguinea</i>
<i>stellatum</i>	<i>sanguinea superba</i>
<i>Wallisii</i>	<i>Harryana</i>
<i>sceptrum</i>	<i>Harryana splendens</i>
<i>odoratum</i>	<i>trochilum</i>
<i>Rossii majus</i>	<i>candata</i>
<i>lutco-purpuratum</i>	<i>chimera</i>
<i>nævium majus</i>	<i>melanopus</i>
<i>Andersonianum</i>	<i>Restrepia antennifera</i>
<i>triumphans</i>	<i>Disa grandiflora</i>
<i>Pescatorei</i>	<i>Cypripedium insigne</i>
<i>membranaceum</i>	<i>insigne Manlei</i>
<i>Oncidium macranthum</i>	<i>Renanthera coccinea</i>
<i>macranthum hastiferum</i>	

—JOHN GLOVER, *Lee Hall*.

GREENING SEED POTATOES.—Greening seed Potatoes is an old practice, but a very good one. It consists of placing the tubers in the sun for a time after they have been taken from the ground until they are quite green. They become green equally well in a shady place, and this, I think, is the best, as I have lately seen some tubers which were so much exposed to the sun that they were quite shrivelled. Potatoes keep better during the winter in a green state, and they are much hardier for

seed than those that have not been so prepared.—A KITCHEN GARDENER.

ATHERSTONE HORTICULTURAL SOCIETY.

THIS Society held its first Exhibition on the 1st inst. in Merevale Park, the seat of W. S. Dugdale, Esq., the President of the Society, who kindly placed his grand park, which is second to none in the midland counties, at the disposal of the Committee. The Committee and their Hon. Secretary, Mr. Alfred Sale, worked together with a will, and the result was that a fine collection of plants, flowers, fruit, and vegetables was brought together. There were over a thousand entries, and the Judges had a hard day's work, especially as the competition in some classes was remarkably keen.

In the first class for the best collection of plants arranged for effect there were six entries, the space allotted to each competitor being 18 feet by 12 feet, arranged crescent-shaped against the side of the tent. Here the Judges had a difficult task to decide the first prize, and ultimately the collections shown by W. S. Dugdale, Esq., of Merevale Hall (Mr. W. Brown, gardener), and Mr. J. Parker of the Victoria Nurseries, Rugby, were declared equal, and the first and second prizes were divided between them. The third prize was awarded to Mr. E. Holmes, nurseryman, Lichfield, and the fine collections of Mr. A. Waters of Coventry and Messrs. R. & F. Allum of Tamworth were highly commended. The collection by Mr. G. J. Sale was also commended, but the deficiency of colour precluded it from taking a prize, although it included several high-class specimens. In the classes for plants in pots there were some excellent exhibits, and the competition was again very keen, Mr. A. Waters of Coventry carrying off no less than seven first and four second prizes. In the classes for cut flowers Mr. Kimberley of Stoke Nurseries, Coventry, was eminently successful, and succeeded in taking six first prizes, four seconds, and one third. The classes for fruit were also well filled, Mr. Hanson Sale carrying off both first prizes for black and white Grapes; Mr. Forsey, gardener to Sir George Chetwynd, Bart., taking both seconds in the same classes.

The roots and vegetables were also far above the average. The cottagers' classes were on the whole well filled, and the exhibits wonderfully good. There was also an exhibition of butter and eggs, which was one of the great features of the Show, Mr. Choyce of Pinwall taking the first prize for butter, and the Marchioness of Hastings the first prize for eggs.

It is seldom that a Society meets with such a marked success on a first attempt, and the Committee may be congratulated upon having brought together such well-known nurserymen and florists as Messrs. Parker and Bryant of Rugby, Messrs. Waters and Kimberley of Coventry, Mr. Holmes of Lichfield, and Messrs. Allum of Tamworth. —(Communicated.)

CARTERS' LEVIATHAN BEAN.

I SEND you specimens of this fine long-podded Broad Bean grown by me. One peculiar feature in this Bean, which I have not seen remarked upon by anyone is, that when the crop was fit for gathering, two, three, and in some instances four growths issued from the bottom of the stems, and are now producing a second crop, from which I am gathering. The ripe pod I send you is from the first crop, and the green one from the second. I consider this Bean the heaviest cropper I have ever grown, and the flavour equal to any other variety. I have had numerous pods this season between 14 and 16 inches in length, containing seven beans in a pod.—THOMAS JELFS, *Hungerford*.

[The dried pod is 13 inches long, and contains eight beans quite hard and ready for sowing. The green pod is nearly 10 inches long, and contains seven very large beans in good condition for cooking.—EDS.]

RED SPIDER IN VINERIES.

"MID-SURREY'S" letter on this subject in your last issue was to my mind a slight misnomer, for in the case adduced the insects do not appear to be in the vinery at all, but outside it. I will refer to an instance of red spider on the Vines in a house, and how in a very simple manner I got rid of thousands of insects. Like your correspondent I reside in a "red spider district," for I am in the same county. Kidney Beans, Vines on walls, and even on some forest trees, are being devoured with this insect, that infests them by millions.

In the vinery in question the young laterals with small leaves from 1 to 3 inches in diameter were rather seriously attacked, but the older leaves on close examination did not appear to be touched. I therefore carefully cut out those infested laterals, which were not numerous, and did not let them fall to the ground, but placed them in a pail of water as they were cut and carried them out of the house. I then, towards evening, gave the Vines a heavy washing, directing the syringe carefully between the bunches, and applying the water with great force. The house was thoroughly drenched, and although the water fell on the bunches it did not

wash the berries, but formed globules as if on Cabbage leaves. An hour or two afterwards the Vines were shaken and the water drops dislodged from the foliage and bunches. The next day no one could tell from the appearance of the berries, which were half coloured, that the Vines had been syringed at all, for scarcely a particle of bloom was moved. The result of the two-hours work is, that the Vines look much better for the heavy shower to which they were subjected, while not a red spider can be found in the house. A week ago there were certainly hundreds, and probably thousands, but by the prompt removal of the laterals, and the vigorous yet very careful syringing, I have now a clean house.

I have little fear now that the thick leathery foliage will be attacked by the pest if I prevent, as I intend doing, the formation of fresh laterals with their thin delicate foliage to invite the insects into the house. With from three to five good leaves beyond the bunches, according as there was space for them to expand, lateral growths at this season can very well be dispensed with, and better still can red spider, which such growth certainly encourages during bright and hot weather.—W. J., *West Surrey*.

DERBYSHIRE HORTICULTURAL SOCIETY.

SEPT. 1ST AND 2ND.

THE annual Exhibition of the above Society was held in conjunction with the Agricultural Exhibition at Derby. The show of plants was a very good one, and quite equal to former years; but there was a falling-off in the number of exhibitors of fruit.

Plants.—In the nurserymen's class for twelve plants Mr. Cypher of Cheltenham was first, showing six fine-foliage plants and six in bloom, comprising well-grown handsome specimens. Messrs. E. Cole and Sons of Manchester were a very good second, with their usual good plants. Messrs. Small & Son of Ilkeston were third. In the gentlemen's gardeners' corresponding class T. H. Oakes, Esq., Riddings House (Mr. Ward), was easily first with a good collection, the following being noteworthy:—*Kentia Fosteriana*, *Latania borbonica*, *Dicksonia antarctica*; *Croton variegatus*, an immense bush, and well coloured; *C. Weismanii*, *Cocos Weddelliana*, *Dasyliirion glaucum*, *Ixora Williamsii*, very good; *I. Fraseri*; *Allamanda Hendersonii*, and *Dipladenia amabilis*. H. Evans, Esq., M.P., Allestree Hall (Mr. Milford), was second, his best plants being *Areca lutescens*, *Croton pictus*, *C. longifolius*, small but good; *Maranta Veitchii*, and *Alsophila australis*. His flowering plants were rather weak, the best being *Allamanda nobilis*. Mr. Gilbert was a very close third. *Selaginellas* were remarkably fine. G. Meynell, Esq., Meynell Langley (Mr. Robinson), was first with *S. cæsia arborea*, *S. Wildevonii*, *S. Mertensii*, and *S. apoda*. Mr. Milford was a good second with *S. cæsia arborea*, *S. stolonifera*, and others. *Pelargoniums* were not first-rate, Mr. Ward being first for tricolor varieties, and Mr. Robinson first for zonal varieties. Mr. Milford staged a very neat and effective basket of plants, for which he was awarded the chief prize.

Cut flowers were very well shown, especially Dahlias. Mr. Edwards, nurseryman, of Nuthall, Nottingham, being first with collections of twelve and six. The same exhibitor staged an excellent stand of four dozen not for competition, as well as a stand of Pompons. Messrs. Perkins & Sons of Coventry were first with twelve Roses, Mr. Henson of Derby being first for six Asters. Marigolds, Gladioli, &c., were also well shown, Mr. Henson being the principal prizetaker. Mr. Cypher had the best bouquet, followed by Mr. Henson. There was a spirited competition for table decorations and bouquets, to be arranged by ladies. In the former there were seven competitors, Mrs. Bolas being first with a very neat stand of flowers, Mrs. Ward of Riddings second, and Mrs. J. Henson third. In bouquets there were fifteen exhibitors for the six prizes offered, Miss Butler of Marlpool, near Derby, being an easy first, Mrs. Butler second, Mrs. Ward third, Miss Cypher fourth, Mrs. J. and Mrs. Isaac Henson fifth and sixth.

Fruit.—There was only one exhibitor in collection of ten dishes of fruit—Mr. Ward, who had very good Madresfield Court and Muscat of Alexandria Grapes, Peaches, Nectarines, Melons, Figs, Plums, &c. Mr. Ward was first for black Grapes with fair examples of Black Hamburgh. The Hon. E. Coke, Longford Hall (Mr. Edwards), was a very close second, and Mr. Robinson third. Mr. Ward was a long way ahead with white Grapes with Muscat of Alexandria, good in berry, bunch, and colour; Mr. Edwards was second, and Mr. Robinson third. Mr. Ward was the only exhibitor of a Pine Apple: he was also first with two Melons, Luscious and Melting, and for Peaches. Mr. Gilbert was first for Nectarines, and Mr. Milford for Cucumbers, having an excellent brace.

Vegetables were very good, there being five collections staged. Mr. Ward; R. C. Curzon, Esq., Lockington Hall (Mr. Woolton); and Mr. Wright, Manor House, Borrowash, were the prizetakers. The last-named exhibitor staged a bunch of Grapes not for competition that weighed about 7 lbs., the berries being a fair size and good colour for the size of the bunch. It was not named, but it resembled Gros Guillaume.—G.

NICOTINE SOAP v. EARWIGS.—I observe by your reply to a correspondent that you have no data as to the efficacy of nicotine

soap in destroying earwigs. I found a colony of these pests, and subjected them to a syringing with a solution of about 8 ozs. to a gallon of water, and they were destroyed instantly. I have no doubt of its proving equally efficacious with ants, but I cannot find any to try it upon.—G. ABBEY.

TOMATO, THE CONQUEROR.

YOUR esteemed correspondent, Mr. W. Iggulden, describes The Conqueror Tomato as being corrugated (see page 180). It is no more corrugated than an egg, and that is more than can be said of a single Tomato in the list which he gives. He has not grown it, or he would say that it was the best Tomato. I can speak confidently about it, for I had our seed direct from America from the raiser. Why does Mr. Iggulden call The Conqueror "commoner" than The Trophy? He ought to know that The Trophy was "common" years before The Conqueror was raised.—SINGLE-HANDED.

SCHIZANTHUSES IN POTS.

SOME weeks ago Mr. Pettigrew directed attention to the desirability of growing *Schizanthuses* in pots for spring and early summer decoration in the conservatory. The grand plants he there refers to I saw at Cheetham Hill about twenty-eight years ago,



Fig. 49.—*Schizanthus papilionaceus*.

and I have never seen any to equal them since. The seed was sown in July, and the plants—grand specimens, 3 feet high and through, bearing thousands of flowers—were flowered in 11-inch pots.

I desire now to say that much smaller plants than those are most valuable for decorative purposes—plants from 1 foot to 18 inches high, and the same in diameter, and covered with hundreds of "butterfly-like" flowers. Such plants may be grown in 5 and 6-inch pots from seed sown at the present time. It should be sown very thinly in a compost of two-thirds turfy loam, the remainder consisting of decayed manure and wood ashes in equal parts. The moment the seedlings can be handled they must be thinned out, leaving five or six in each pot, and these must be grown in a light position and not be topped. If the plants are intended to be flowered in 5-inch pots the seed may be sown in those pots, which however should not be filled quite full of soil, but a little space should be left for a top-dressing of manure; if required to flower in 6-inch pots sow in pots 4 inches in diameter, which must be washed clean, especially inside, and dried before using, or the roots will be injured when the plants are placed in their flowering pots. A frame is suitable for the young plants until cold weather occurs, they must then be placed on a shelf in a light greenhouse, the temperature of which should not fall below 40°. They require careful watering through the winter, but when growing rapidly in the spring the supplies must be copious, and as the flowering period approaches the pots should be placed in

saucers, and clear soot water may be given with advantage twice or thrice a week.

S. retusus is very rich in colour, but lacks the elegance and grace of *S. pinnatus* and *S. papilionaceus*. The last-named is very charming, and once produced in good condition will be regarded as indispensable for decorative purposes. If not required for flowering under glass these plants are highly worthy of preparation in the manner indicated for planting in the flower garden in March or April.—J. W. B.

MORE ABOUT POTATOES.

MR. R. W. BEACHEY in his excellent article in the *Journal* of September 2nd alludes to some remarks of mine on the Potato (*vide Journal* August 5th), and pronounces them "Fallacy No. 1." Now I think the brevity of my remarks, out of consideration for your space, has been the cause of this judgment, as I feel convinced from the latter half of Mr. Beachey's article that our principles of Potato culture are identical, although differing somewhat in detail. He is quite correct in his description of the result of planting the largest Potatoes whole, also that generally the largest in a crop are the most diseased. It is, I believe, generally allowed that the attacks of disease are modified somewhat by the stage of maturity of the tubers, and I think this explains how the largest are often more diseased than the others. Planting large Potatoes whole is, I am convinced, a mistake, as you get only about one-fourth of what the same Potato would have produced if cut into pieces of one or two eyes each, and the crop in the latter case would be far more even in size.

My authority for cutting when I commenced were the experiments of the late Professor Lindley at the Gardens of the Royal Horticultural Society. I believe Mr. Beachey to be quite correct in his remarks on saving seed yourself and not buying in the spring. My way is to select seed when the crop is dug, spread the tubers in a single layer on the floor of an attic exposed to the light from a window in the roof; there they remain till taken for planting, only having been covered during severe frost with a piece of matting. The result is they become green in colour, have short stout shoots and are not shrivelled, which I consider the essentials in a seed Potato.

When planting each tuber is cut into pieces of two eyes (to make sure of a plant if one shoot is accidentally broken off), commencing cutting at the stem end; the sets are then dusted in dry lime and dug into the previously manured bed about 9 inches to a foot apart in the row, and the rows about 18 inches from the next. The Potatoes are not earthed at all; if the soil is light the weeds are hand-pulled, if heavy it is worked once or twice with a pronged hoe.

I quite agree with Mr. Beachey that Champions and Magnum Bonums are not the varieties wanted, and prefer those of something the style of Snowflake, which ripen moderately early, keep well into the spring, and the stems of which are not too luxuriant.

There is no doubt we are at the mercy of the weather, yet Mr. Beachey shows that in spite of this he has for fourteen years saved seed of Gloucestershire Kidneys, which are as good now as they were at first. This is what I call retaining the constitutional vigour of a Potato thoroughly well.

In conclusion, the only point that I see at present on which we are not agreed is, Which are the tubers to reserve for seed? Maturity of growth must come first, after this Mr. Beachey thinks the medium in size, and at present I think the largest have the most vigorous shoots and produce the finest crops.

All this does not banish the disease, but I believe it does the next best thing—namely, mitigates its severity.—W. B. W.

GOOD DAHLIAS.

THESE popular flowers are now in their best condition, and a good opportunity is afforded for making a selection of the most distinct and handsome varieties. Several catalogues are issued by the chief growers of Dahlias, with accurate descriptions of the varieties in commerce; but intending buyers who have not the opportunity of personally inspecting the collections are confused by the great number enumerated, and are almost as much at a loss as if the descriptions were too meagre. It is for such that the following notes are intended; and as many who only possess gardens of limited extent have to content themselves with a correspondingly limited number of plants, a selection of about a dozen really good and generally useful varieties in each section may be of service.

Show Varieties.—These are so numerous and excellent, and so many new and meritorious varieties are being annually sent out, that selection is by no means an easy task where the collection is

limited to a few. However, the following will be found of fine quality and entitled to rank among the best, though they are equalled by many and possibly surpassed by some that have not come under my notice in the best condition. The new varieties appended to the principal list have been recently exhibited at Kensington and honoured with certificates—a sufficient indication of their merit, for a new Dahlia must possess some excellent qualities to obtain such a distinction now. A very handsome symmetrical flower is John Standish (Turner), of a rich reddish hue, attaining great size, and telling well in collections at exhibitions. Canary (Fellowes) is of fine form, good depth, very regular in outline, with a full centre, and of a clear bright yellow colour. Chris. Ridley (Turner) is a beautiful variety, with flowers of good substance, clean, neat in outline, deep, and of an extremely rich crimson tint, scarcely rivalled in hue when at its best. John Bennett (Rawlings), very distinct and effective, of neat form, the florets being tinged with yellow and tipped with scarlet, the contrast of the shades having a peculiar appearance. Lady Gladys Herbert (Keynes), like the last this is remarkable for the contrast of colours in the flowers, the body of the florets being white and the margin rich crimson; the flowers are usually of good size and symmetrical. Earl Radnor (Keynes), a handsome flower of considerable size, good form and substance, the colour being a warm purplish plum tint. John Greenaway (Fellowes), one of the finest crimson selfs, excellent in symmetry, size, and substance. Ovid (Turner), an exceptionally beautiful variety with large well-built flowers of great depth, good centre, and altogether a nearly perfect flower. The colour, too, is an additional attraction, the shade being very distinct—a deep clear puce. Samuel Plimsoll (Turner), a very attractive purple self, flower of good form. Toison d'Or (Turner), a charming bright yellow or golden-coloured variety, admirable in all respects. Sarah McMullen (Rawlings), a pretty variety with mauve-coloured symmetrical flowers. Picotee (Keynes), is a bright variety, the florets of which are of a golden yellow tinge margined with crimson. Among the glowing colours the following are especially noteworthy:—Victory, crimson; Vivid, scarlet; Crimson King, fine tint; Dauntless, orange; and John Laing, bright crimson, all of Keynes' raising; while among whites, Julia Wyatt (Keynes), Mrs. Hartopp Nash (Turner), Mrs. Henshaw (Turner), and Purity (Fellowes), are noteworthy. Among the new varieties the following are especially deserving of notice:—Cyprus, a fine flower, excellent in form, and of a pale orange tint, the edges of the florets being faintly tinged with red. Mr. Spofforth, a handsome rich crimson flower of good substance; Helen Macgregor, white, tipped with purple, deep and full in form; Revival, a grand variety, with flowers of moderate size, great depth, symmetrical form, and rich scarlet colour; and Goldfinder, a clear bright yellow variety, of excellent form and substance. All these have been raised by Mr. Fellowes, and the two last mentioned were exhibited by Mr. C. Turner at a recent meeting of the Royal Horticultural Society, when first-class certificates were awarded for them, honours that were also accorded to the following varieties from Messrs. Keynes:—Lady Wimborne, a beautiful variety with full neat flowers of a pale rose tint; James Vick, also excellent in form, rich purple in colour; and Mrs. Compton, fine purplish maroon colour, rather more globular than the preceding.

Fancy Varieties.—There is also a great number of these, many presenting some peculiar combinations of colours that are more striking than beautiful, but there are others of considerable beauty, the tints of the stripes or margins harmonising with the body colour very pleasingly. The forms of some new varieties are very good, but generally the fancy varieties would not come up to the standard of the show section in that respect. The undermentioned are all worth growing, and will bear comparison with any others in commerce:—Henry Glascock, buff-coloured ground striped with crimson, rather variable; Monsieur Chauvière, lilac, spotted and streaked with rich crimson; and Grand Sultan, yellowish buff, striped with bright red, all of which are Keynes' varieties. Mrs. Saunders, a beautiful variety, yellow ground tipped with white, excellent form; and Peacock, deep purplish maroon, the florets edged with white, very distinct; both of Turner's raising. Singularity (Rawlings), yellowish ground colour, the florets tipped and edged with red and white, very aptly named; and Prospero (Goodwin), a fine flower, maroon colour edged with white. In addition to those noted above, Messrs. Keynes' Parrot, Maid of Athens, and Lucy Fawcett; Mr. Fellowes' Oracle; Mr. Turner's Pauline and Mrs. Standish; and Messrs. Rawlings' James Carter, are all good varieties.

Bouquet Varieties.—The improvements that have been effected in this section of Dahlias during recent years is remarkable. Not only have we a most satisfactory symmetry of form combined with diminutive size, but the colours are very rich and varied.

The majority of the varieties are extremely floriferous, and thus yield a very important supply of neat flowers of considerable usefulness for all purposes of decoration, particularly at a time when the general supply of other flowers begins to diminish. Mr. Turner has contributed to the improvement of this section, and Mr. Cannell has also worked successfully in the same direction, but some of the best and most distinct varieties I have yet seen are now flowering in the Royal Horticultural Society's Gardens at Chiswick, where a large number of continental forms are being grown. These comprise several of exquisite regularity and bright colours, the florets in some varieties having the margins recurved so as to impart a quilled appearance to the flowers. Perhaps one of the best is that which bears the name of the genial Superintendent at Chiswick, but the majority are dignified by names that almost defy English utterance. Of the varieties in commerce those appended are meritorious:—Louis Rodani, lilac; North Light, rich scarlet; John Sandy, orange shaded with yellow; Crimson Beauty, rich crimson maroon; Amelia Barbier, pale rosy pink, darker margin; Dr. Schwebes, fine scarlet; Fireball, bright red; German Favourite, crimson; Prince of Liliputians, maroon; White Aster, a good white; and Lady Blanche, undoubtedly the finest white variety, of admirable form and pure in colour. Of new varieties Dora, pale primrose; Hebe, rose tipped; Toby, dark scarlet; and Fair Helen, white tinted with lilac, are the best.

Bedding Varieties.—A list of Dahlias would not be complete without including some of those free-growing forms, which, although very bright and effective in beds, do not possess the type of flowers that florists regard with especial favour. Good habit and floriferousness combined with rich glowing and distinct colours are the principal requisites in this section, and a very fine display may be produced by the judicious planting of varieties possessing those qualities. The following will be found generally useful:—Flora Macdonald, primrose; Mont Blanc, white; Prince Arthur, crimson; Royal Purple, Cloth of Gold, Drap d'Or, Rising Sun, rich scarlet; The Pet, maroon, white tip; Marguerite Bruant, good white; Faust, fine deep maroon; Sir James Watts, scarlet; and Dark Model, fine crimson. Those enumerated in the above section will form a good representative collection of Dahlias at the present time.—D.

THE LATE MR. JOHN READ.

By the death of this well-known florist we of the older generation of florists have to lament the loss of an enthusiastic lover of the Auricula, Tulip, &c., and of one of those godly men who show that the truest lovers of Nature are those who in simple faith look up to their Father as the Creator and Upholder of all things; a Wesleyan, if I recollect right, and a consistent Christian, there are few who knew him who will not grieve to think that they have lost a friend of no ordinary worth.

It is now many years since that I paid Mr. Read a visit at Market Rasen. I had known him by his contributions to the "Gossip for the Garden," under the signature of "DERA," an anagram of his name, and I was very much astonished when I saw how small his collection of Auriculas was. His great delight was in the raising of seedlings, and in this he displayed no ordinary amount of intelligence and skill, carefully hybridising and keeping a note of all his crosses. He has left behind him two flowers which will probably perpetuate his name—Aeme and Dr. Horner, both of which were sent into commerce by Mr. J. Booth of Failsworth, and is another instance of how strong a hold the Auricula has on those who cultivate it. Tulips, Ranunculuses, and other flowers were given up, but the Auricula remained to the last his chosen and favourite flower. He has left behind, too, what is far better, an honoured name amongst his relatives and friends.—D., Deal.

THE PARKS OF LONDON.—No. 2.

FINSBURY PARK.

As usual this charming little Park is in the most satisfactory condition, every portion indicating the care and attention which are so necessary to produce the best results. Well-kept turf and walks, fast-improving shrubberies, and abundance of flower beds serve to render the Park a greatly appreciated resort for the inhabitants of the contiguous and rapidly advancing districts, and it is surprising to observe the great number of people who assemble there every Saturday and Sunday if the weather be fine. One feature, too, which this of all the London public parks alone possesses is that its elevated position commands some pleasant prospects. Beautiful glimpses of Essex and Middlesex are obtained from the northern portion of the Park, where the ground slopes down rapidly. All these advantages render Finsbury Park

as deservedly popular in the north of the metropolis as Battersea Park is in the south. The flower garden is chiefly confined to a sheltered position near the lake at the highest portion of the Park, but numerous beds are found elsewhere, generally in lines on each side of the paths. All the beds are extremely bright, the Pelargoniums and other flowering plants being in first-rate condition, fresh, vigorous, and flowering profusely; but objection might be taken to the preponderance of scarlet and pink in the arrangements, which in one place is very noticeable. Otherwise the designs are tasteful, particularly of a few carpet beds, which although not largely represented are remarkably well done. In the principal flower garden referred to above, which consists of two series of beds cut out in turf separated by a broad path, the display is very satisfactory. The beds are in several rows on each side of the path. Those at the back on the north side are very large, circular in form, and occupied with Cannas in superb health, the margin being formed with Ageratums, Pelargonium Vesuvius, the pretty and effective lilac-coloured Lobelia Omen, and the outermost edge of Echeveria secunda glauca. Some beds between these have Centaurea ragusina and Verbena venosa intermixed. In the next row the beds have centres of Pelargoniums, comprising Mrs. Turner, a strong free-flowering variety with bright pink flowers in very fine trusses, and Rose of Allandale, another very good light pink variety. These beds are edged with Crystal Palace Gem Pelargonium and Lobelia Lady Macdonald, a form of strong habit and bearing pale blue flowers. In front of these are smaller beds, some containing centres of Pelargonium Theocritus, a very good rich scarlet variety of strong habit, a band of Centaurea ragusina, and a margin of Lobelia pumila magnifica, the effect being very pleasing. The beds near the path are circular and oblong in form, the former containing Alternanthera magnifica, paronychioides major, and the richly coloured A. versicolor edged with Veronica repens, Herniaria glabra, and Echeveria secunda glauca. The others consisted of the beautiful white variegated Pelargonium Princess Alexandra, Lady Cullum, and Macbeth, edged with Iresine Lindeni kept very dwarf, and Mesembryanthemum cordifolium variegatum. Some other beds contain Coleus Verschaffelti, very richly coloured, and edged with Robert Fish Pelargonium. On the opposite side of the path the beds are planted in a similar manner, with the substitution of a few different varieties of Pelargoniums. In other parts of the Park are some good beds of Dahlias, Palms, &c., all excellent but not calling for special mention. Great credit is due to the Superintendent, Mr. Cochrane, for the able manner in which the Park is conducted.

REGENT'S PARK.

We have in this Park an instance of the great difficulties attending flower gardening in unfavourable localities, even when a considerable amount of skill is brought to bear upon the subject. Regent's Park, or rather that portion of it at the south side which is devoted to bedding, is so closely surrounded by trees and houses that it is not surprising if plants do not thrive so well or appear so fresh as in more open positions. However, though there is a slight dullness of colour noticeable, particularly in the Alternantheras, yet everything has been done that is possible under the circumstances to render the beds attractive, and in several instances these efforts have been fairly successful. Carpet bedding, subtropical bedding, and the ordinary beds of flowering plants are represented, and many tasteful designs, especially of the first mentioned, are noteworthy. One in particular, a circular bed east of the central path, has a most graceful design composed of a variety of curves combined in a highly artistic manner, and principally planted with Alternanthera amabilis and magnifica on a ground of Mentha Pulegium gibraltaria, and had the colour of the former been richer the effect could have scarcely been excelled. Another bed opposite that is also pretty, but somewhat formal, as the design consists of straight lines and sharp angles. Several ribbon borders are bright with lines of Pelargonium Waltham Nosegay, Pyrethrum Golden Feather, and Ageratums, while the vases are very effective. Some of these contain a great number of flowering plants, such as Pelargoniums, Fuchsias, Calceolarias, &c., the sides being draped with Tropæolums, and the base covered with Lysimachia nummularia. Large beds of Castor-oil Plants, Cannas, Solanums, and Eucalypti form important features in the arrangements, the glaucous colour of the Eucalypti contrasting strikingly with the darker plants employed. These few notes indicate the chief excellencies of the display, and it only remains to state that the general condition of the Park is admirable as regards the keeping of the turf, paths, and shrubberies.

HYBRID ODONTOGLOSSUM.—Mr. Bardney describes a hybrid Odontoglossum (see page 192). Is this only a supposed hybrid, or is it proved? Was it raised in this country? I understand

that no hybrid *Odontoglossum* has been raised. Can anybody tell me whether *Cattleya Mossiae* or *C. Loddigesii* was the seed-bearing parent of *C. Manglesii*?—SINGLE-HANDED.



THE following are the ROYAL HORTICULTURAL SOCIETY'S ARRANGEMENTS FOR 1881:—Certificates will be awarded to deserving new fruits, vegetables, plants, and flowers; and medals, supplied by the Davis Fund, will be awarded for meritorious productions exhibited at the meetings. The Fruit and Floral Committees will meet on January 11th, February 8th, March 8th, March 22nd, April 12th, April 26th, May 10th, May 24th, June 14th, June 28th, July 12th, July 26th, August 9th, August 23rd, September 13th, October 11th, November 8th, and December 13th, the chairs being taken on each occasion at 11 A.M. The Great Summer Show will be held from June 3rd to June 7th; the Rose and Pelargonium Society's Show June 28th and 29th; and the Exhibition of the British Bee-keepers' Association July 26th to August 1st; the Artisans' and Cottagers' Show August 1st; and the Evening Fête on Tuesday, June the 28th.

— ON Monday afternoon there was a slight but welcome shower of RAIN IN LONDON, the first that has fallen for twenty-nine days. The heat since the commencement of the month has been very oppressive, and on gravelly soils in the south of the metropolis the grass has quite a brown and burnt appearance. Red spider has also increased to an extraordinary extent on several forest trees, notably on Limes and Willows, and several trees of the former have lost all their foliage. The weather has been highly favourable for maturing the wood of fruit trees, but now that the harvest is secured a copious shower would be of great benefit to both farms and gardens in the south of England.

— "W. B." writes, "In Croxteth Hall Gardens there are now flowering in two beds *TIGRIDIA PAVONIA GRANDIFLORA* and *CONCHIFLORA*, and the effect is gorgeous. These beautiful plants are admirably adapted for planting in shrubby borders and in large beds in the pleasure grounds. The Plum trees in a house in the same garden, which generally do well, are again laden with a heavy crop of extra fine fruit. Pyramid Pear and Plum trees in pots, which have set the fruit indoors and afterwards been plunged outside, have a good crop of fruit."

— MESSRS. JAMES CARTER & Co., 237, High Holborn, request us to state that they will offer the second and third prizes in the open class A at the International Potato Exhibition to be held on September the 22nd and 23rd. The class is for twenty-four distinct varieties, nine tubers of each. Notice of a desire to compete must be given to the Secretary, Mr. J. A. McKenzie, Tower Chambers, Moorgate, London, E.C., before the 14th instant.

— WE are informed that the ROYAL HORTICULTURAL SOCIETY OF IRELAND held their autumn Show on Thursday the 2nd inst., in the grounds of Mr. Cecil Guinness at Dublin. The weather proved very favourable and the attendance was large, which with the satisfactory condition of the exhibits rendered the Show very successful. Plants were well shown, particularly those remarkable for their ornamental foliage, Ferns being represented by many handsome specimens. The chief exhibitors in these classes were Lord Ardilaun, St. Ann's, Clontarf; Sir Edward S. Hutcheson; Lord Justice Deasy; Messrs. Watson, Westby, Jury, Riall, and Wilson. Among the exhibits not in competition a fine group of plants from Messrs. Rodger, McClelland, & Co., Newry, was

noteworthy. Cut flowers were also numerous shown, the chief prizes for Dahlias being obtained by Mr. Leland, Mr. C. Hamilton, and the Rev. Frederick Tymons. Other exhibitors in the cut flower classes were Messrs. Guilfoyle, Berry, Comyns, Lindsay, Campbell, and Jonathan Hogg. Messrs. Alexander Dickson and Sons, Newtownards, also staged a fine collection of Rose blooms. Fruit was not comparatively quite so well represented as the other classes, but several exhibitors had good examples of Grapes, Peaches, Nectarines, Plums, and Pears. The chief prizes were awarded to the Countess of Charleville (Mr. Roberts), Lord Portarlinton, and Mr. Nathaniel J. Powell.

— IN the Royal Horticultural Society's Garden at Chiswick a number of CAPSICUMS are now being grown for trial, a great variety of forms being represented. Among those with long narrow fruit two of the best are Red Cayenne (Veitch), and Long Yellow (Vilmorin et Cie.), the fruits of both being somewhat similar in form, 4 or 5 inches in length, and freely produced. Among the varieties bearing rounded fruits the most noticeable are Cherry Red, Yellow Tomato-shaped (Leroy), Yellow of Noera (E. G. Henderson), certificated at the last meeting of the Society, Yellow Cherry (W. Paul & Son), and a very large-fruited variety named The Monster (E. G. Henderson). Of the small-fruited forms, Tom Thumb (Sutton & Sons) is the best; it is of dwarf habit, and bears a great number of diminutive fruits, the plant being really attractive in a decorative point of view.

— REFERRING to the letter, page 207, on SOUND AND DISEASED POTATOES, Mr. Luckhurst writes:—"Had 'W. G.' taken up the crop of Myatt's Prolife as soon as the tubers ceased growing, he would have saved it from disease. To leave this early variety to be lifted with Magnum Bonum—a late variety, was decidedly wrong, and the result is precisely what might be expected. If the early, intermediate, and late varieties are taken up separately in succession as the growth of each section ceases there will be much less risk of loss by disease."

— THE same correspondent writes as follows on *TROPÆOLUM SPECIOSUM*:—"This charming little South American climber has long been established in the open ground at Messrs. Woods' nursery near Uckfield. It is planted at the foot of a hedge some 6 or 7 feet high, over which its growth rambles every year, and is at the present time laden with clusters of its rich crimson flowers."

— THE very distinct and showy DAHLIA JUAREZII is now flowering finely at Mr. H. Cannell's nursery, Swanley, Kent, and he has recently exhibited flowers of it at several exhibitions, where they have invariably been greatly admired. Especially was this the case at the Alexandra Palace on Friday last, when they were shown with the brilliantly coloured *Tigridia pavonia* and bouquet Dahlias. The colour is so bright, and the starlike form of the flowers so attractive, that it deserves the attention of all who patronise the beautiful genus in which it is included. A botanical commendation was awarded for it by the Floral Committee of the Royal Horticultural Society on September 16th, 1879.

— THE *Southern Reporter*, describing a tour of the members of the Associated Chamber of Commerce, contains the following relative to the TWEED VINEYARDS:—"Arriving at Clovenfords the whole party inspected the Tweed Vineyards, which had been kindly thrown open for the day by Messrs. William Thomson and Sons, the proprietors. No visitor to this district should miss this sight, of which there is perhaps none similar in Great Britain, and certainly not in Scotland. The Vineyards are very large, and if the houses were placed in a line they would extend to the length of half a mile. An idea of their extent may, however, be much more easily gained when it is known that the annual production of Grapes is 15,000 lbs. or a little over 7 tons! Through the houses there run five miles of hot-water pipes, heated by twelve

boilers. This sight was certainly not the least attractive of the day, and to walk through the houses and view the luscious fruit hanging in bunches overhead within easy reach greatly exercised one's virtue, which, however, was rewarded on departing, for then the occupants of each carriage received a box containing a bunch of the tempting fruit of the Duke of Buccleuch, the total weight of the bunches being 112 lbs."

— R. L. writes as follows:—"The peculiar Orchid *BOLBO-PHYLLUM BECCARII*, of which Messrs. E. G. Henderson & Son exhibited a flowering specimen at the last meeting of the Royal Horticultural Society, though certainly not possessed of any qualities entitling it to the term 'gorgeous,' which has been somewhat strangely applied to it, is yet deserving of note from the extraordinary size of the leaves and the repulsive odour of the flowers. The leaf on the plant referred to was nearly 3 feet in length by about 2 feet in width, the small foetid flowers being borne in a dense spike. I believe this was the first time the plant has been flowered in this country."

— THE cultivation of TOBACCO IN FRANCE appears to be increasing. In the Department of which Calais is the principal town, this crop is said to be an important part of the industry of the district. Last year, in the Pas de Calais, 2100 acres were authorised to be planted with Tobacco, which was 247 acres more than in 1878; and this implies that both the Government and the agriculturists were satisfied with their previous experience. The amount furnished to the Government from this area was 3,659,636 lbs., or an average of 1743 lbs. per acre; and at the price which the French Government gives for the best quality, namely 1 franc 45 cents per kilogramme, the yield per acre would be about £24 15s. The quantity grown in 1879 was 573,196 lbs. more than in 1878. The Department of the Nord, another district with a climate closely corresponding with that of the south of England, grew rather more tobacco than the Pas de Calais.

— A NAPLES correspondent referring to the PHYLLOXERA IN ITALY says:—"It is reported from Messina that the invasion of the phylloxera is of greater extent than at first supposed. The Ministry has authorised the spending of another 10,000 francs, and decreed the destruction of more vineyards, on which work about three hundred men are employed. The proprietors are dismayed at the ruin with which they are menaced." The Government of Turkey has also forbidden the importation of any plants into that country, as a means of preventing the increase of the phylloxera in the Sultan's territories.

— WE received from Mr. Rivers during the last week of August a perfectly ripe, large, and handsome specimen of BEURRÉ DE L'ASSOMPTION PEAR, the quality of which was of great excellence. The fruit had been grown on a tree in a pot, and was placed outdoors in June. This is a much larger and earlier Pear than Williams' Bon Chrétien, and is highly worthy of a position on a south wall or other sheltered aspect, as it is undoubtedly the finest of all early Pears. It was raised in France by M. Rouille de Beauchamp, and first fruited in 1863.

— A DAILY contemporary in discussing the condition and prospects of the Fiji Islands under British rule, gives the following statement concerning the well-known COFFEE DISEASE—"The worst insect is the *heneleia vastatrix*, which settles on the young Coffee shrubs. Some rash trader from Melbourne introduced the pestilent little grub, and now the British authorities are obliged to put plantations infested with this plague into strict quarantine, for fear of the infection spreading to other plantations." Possibly the writer of the above remarks will be surprised to learn that the *Hemelia vastatrix* is a fungus, and not an insect.

— MR. JAMES CROSS of Bailie House, Wimborne, states that he planted in spring 1 bushel of CARTER'S IMPROVED MAGNUM

BONUM POTATOES, and he has just dug 28 bushels as the yield, none of the tubers being diseased.

FUNGI VERSUS DISEASE IN PLANTS.

THE contributions of your correspondent, Mr. E. Luckhurst, usually contain so much of practical interest and value to readers of the Journal, that in common with many others I generally derive no mean share of satisfaction and profit from perusing his remarks. It was, therefore, with a feeling of regret I found when reading his note on the shanking of Grapes in the last issue of the Journal, that our opinions regarding the relation of fungi to diseases in plants were entirely at variance. After referring to the fact that the Potato disease, Peach blister, and the shanking of Grapes have been attributed to the effects of fungi, Mr. Luckhurst states, "In every instance the idea is erroneous." He then draws attention to some well-known peculiarities of fungi, and observes that the diseased epidermis of any part of the young and tender growth of plants affords a suitable medium for the vegetating of fungus spores, and thence infers that fungi do not produce disease, but "follow and are the results of it." The only evidence adduced in support of this view is the somewhat doubtful fact that "delicate sickly human beings" are more subject to infectious diseases than "those in robust health," a rule which I am persuaded is by no means general; and further, the "analogy existing between plants and animals" is not of such a nature as to justify the argument. An intelligent and observant man like Mr. Luckhurst must, I am convinced, have other and better grounds for his opinion than the single statement referred to, and a further explication of his views would greatly favour myself and others who are interested in the subject.

The Fungi are an extremely large family, and the numerous forms differ very much in their characters; but there are two great sections into which they clearly fall—namely, those that grow upon the decomposing remains of organic matter, and those that grow only upon living beings, either vegetable or animal, and are true parasites. The latter, as with all parasites, possess the power of appropriating to themselves the substance of the being they infest, breaking up or decomposing the organic compounds, and thus obtaining the elements necessary for their growth. In the higher divisions of the vegetable kingdom parasites of various kinds occur, some with leaves and abundance of chlorophyll, which obtain from the host the rising or crude sap that is elaborated in their own leaves under the influence of the sun, while other forms, leafless and devoid of chlorophyll, subsist upon the descending or fully elaborated sap. The fungi resemble the latter in their action, for the whole of their support is derived from the living substance of the host, and when that dies the infesting parasite dies also. The conditions necessary to the growth of fungi are chiefly a particular temperature and moisture which vary according to the species, and without these conditions are provided the spores or mycelium of a fungus must perish, which much more frequently occurs from that cause than from the want of "a suitable nidus." Can Mr. Luckhurst bring into accordance with his view the fact that some parasitical fungi are entirely confined to particular species of plants?

I have not referred particularly to the Potato disease, which is undoubtedly one of the true parasitic fungi, nor to the Peach blister, or the shanking of Grapes, the connection of the latter with fungi being by no means clear, but to the matter generally, as did your correspondent after introducing his remarks with a few observations on the singularity of disease being so often attributed to the effects of fungus, instancing those above named as examples.—S.

SHANKING OF GRAPES.

I AM much obliged to Mr. Taylor for his kind and considerate letter on page 193 in reply to mine on the "Shanking of Grapes." Still I must entirely differ from him. It is not a matter in which I have come to a hasty conclusion, but the outcome of some years of close observation. When I said the Vines were healthy, I mean that they were all that could be desired in that way, and also I may say that the crop of fruit they were bearing was exceptionally fine; indeed I have never seen better, and this was also the opinion of others, as I can show. I sent some of them to Covent Garden Market, and my salesman wrote to say "that they were the admiration of all who saw them, and he could sell as many as I liked to send at very high prices." Well, some of these very bunches had little pieces shanked. They were cut off and carefully examined, and I am of the same opinion now as I was when I last wrote—it is caused by fungus. I am perfectly aware

that I am in opposition to the received opinion, but I cannot help it, and I feel confident that when the matter has been thoroughly investigated I shall be found to be in the right.

As regards Mr. Luckhurst's letter I have but little to say. With regard to certain diseases, if I may so term them, as resulting from fungus, he simply says, "in every instance the idea is erroneous." That is very easily said, but he gives no proof that it is so in any way. One assertion is equal to twenty denials is a well-known axiom, and this I apply to Mr. Luckhurst. His letter has no weight with me whatever. I think in the latter part he had better have consulted a medical man before he made the following statement:—"The fact of the liability of delicate human beings to suffer from infectious diseases while those of robust health are untouched, is well known to medical practitioners." Is it? Here is another of Mr. Luckhurst's facts. Now I believe it is remarkable that these particular kind of diseases, such as fever, small pox, &c., are more readily taken by persons in robust health, and are generally more fatal. Take, for example, the North American Indians, full of vigorous health; they were carried off in hundreds by small pox, and it is the same with fever. The old saying of "a creaking door hangs long on its hinges" is a truer one than most people think. Mr. Luckhurst goes on to say, "the analogy which exists between plant and animal life should fairly induce similar conclusions." I fail to see this entirely. The organisation of a man and a plant are so widely different that to my mind there is no analogy at all. As Mr. Luckhurst has so kindly said of my theory, I think I can more safely say of his letter—"in every instance the idea is erroneous."—HARRISON WEIR, F.R.H.S., *Weirleigh, Brenchley, Kent.*

GLADIOLI, &c., AT LANGPORT.

WHEN a man—and he no scatter-brained smooth-faced youth, but a venerable white-headed sexagenarian—looks you quietly in the face and tells you that he has 20 acres of Gladioli, your first impulse is to give that low vulgar whistle which simply implies that your vis-à-vis has told you a pretty considerable tall one, or that Somersetshire acres are different in size from those in other parts of England. Your second is to think of the few hundred roots you have in your own garden, and to smile at the idea of your being thought to be a grower of Gladioli. Yet this was what Mr. Kelway told me when I met him at the Royal Horticultural Society's Show in June last, and bid me come and see. So on my journey to Taunton I accepted his courteous invitation, and, despite all the delays and inconveniences of the two competing lines of railway, was enabled to spend a few hours in visiting this most remarkable place, for the annals of Gladiolus-growing can tell of no such achievement as this. M. Souchet and his successors, Messrs. Soullard & Brunelot, grow them largely and supply the Continent with corms to a large extent from their grounds at Montreux and Fontainebleau, but they grow nothing like the quantity that Mr. Kelway does—a quantity that seems to increase every year; and I can quite believe his statement, that if his corms were planted the same distance apart that growers in their private gardens do, he has sufficient to plant 100 acres instead of 20. He may, then, surely lay claim to being the prince of Gladiolus growers.

Most florists know that Langport is in Somerset, but more particularly I may state that it lies on the branch line of the Great Western Railway from Yeovil to Durston on the main Bristol and Exeter line, in a tract of country of great historic interest—the scene of Alfred the Great's early life, and many centuries afterwards of Monmouth's rebellion, the last embers of which were so cruelly stamped out by the bloody assize of the brutal Jeffries. The country is low and marshy, but Langport itself stands in rather an elevated position as compared with the neighbourhood. The soil is of various characters—some light, other parts stiff clay, and others loam, so that no special advantages are derived by Mr. Kelway from his position, indeed I consider quite the reverse, for I saw on his land patches which had been continuously under water where the corms had perished—a marked contrast to Fontainebleau, where the clear bright autumn allows them to be lifted in such a ripened condition as is hardly possible in our moister climate; for the climate which ripens the delicious Chascelas de Fontainebleau must compare favourably in this respect to our own, where the ripening of Grapes out of doors is so rarely achieved.

Mr. Kelway's land comprises about 140 acres, and of this, as I have said, 20 acres is this year devoted to the culture of Gladioli. In such an immense culture there is, of course, to be found the utmost variety. There are huge patches of such as *Brenchleyensis*, *Bowiensis*, and the older French varieties; while there are selected spots where the choicer varieties both of French

origin and his own seedlings are grown, and the prices of the roots vary from 5s. a hundred to 60s. a piece. Here is a piece of ground, for instance, of several acres, where the corms have been literally ploughed in. The drills are done by the plough, the roots planted and covered over with the plough, much in the same way as Potatoes are in some cases planted; while here is another smaller piece where each corm has been carefully planted, and the ordinary garden method is adopted. He does not find that the soil makes much difference, and in this I am inclined to agree. Moreover, the use or non-use of manure does not seem to affect them. In the early days of Gladiolus-growing manure was considered injurious to them, and all were advised never to use it; this is an utter fallacy. I saw some small corms of the choice varieties, which were sown on an old hotbed, about 3 inches of soil resting on the manure, yet here they were as healthy as in any other part of the ground, while in other places a heavy coating of manure had been applied on the surface without in the least affecting the health of the plants, unless it was indeed to make them more vigorous. Wherever we turned it was "Gladioli to the right of us, Gladioli to the left of us," &c. Even the walks between the beds were covered with seedlings, and they seemed as much at home there as anywhere else. What, it may be asked, becomes of all these flowers? Do they "waste their sweetness on the desert air?" Not so; they appear in places all over England. Last year one hundred thousand spikes were sent out for decorative purposes to all parts of England, while America, the colonies, and the British Islands are largely supplied with the corms. It may well be imagined what a laborious matter this culture is. Already, when I was there, Mr. Kelway had begun the lifting of the small seedlings and spawn, and this will go on continuously for months as the corms ripen until frost comes to put an end to it. Then, again, consider the planting. Mr. Kelway takes off the outer skin of each corm, so that he may see that no imperfect ones are planted, and each has to be planted separately by hand. This planting begins in February, and goes on continuously until May or even June.

As Mr. Kelway grows such a large number of seedlings he has the good fortune to raise many very striking novelties, but it must be most bewildering for him to know what to reject. On my remonstrating with him for the enormous number of named sorts in his catalogue he posed me by the reply, "But what will you cut out? If you were to reply, The older varieties, the answer might be, Why Lady Bridport, one of the oldest, is also one of the best for exhibition purposes even now." But this makes the task of recommending varieties a very difficult one. Of course I know some, and can easily recommend them; but it does not follow that there are not many others quite as good and perhaps better. My advice would then be to anyone who desires to cultivate them, to name the price to which he will go and leave himself in Mr. Kelway's hands. In one respect my visit was unfortunately timed. The season was so very late that very few were in bloom, and it was with great difficulty that a presentable box could be cut for the Taunton Show; but had I been there in "the season" I daresay I should have been bewildered by the *embarras des richesses*, and so philosophically consoled myself.

Those who were present at the June Show at South Kensington need not be informed that Gladioli are not the only flowers for which Mr. Kelway is noted. The stands of Pyrethrums which he exhibited, and which so puzzled the multitude, bore witness to the fact that he is no ordinary cultivator of these fine flowers. I heard them called Chrysanthemums, Asters, and by one lady who was quite sure of her ground Zinnias. They were indeed very grand, and several of them were his own seedlings. Upwards of sixteen thousand of these very handsome plants were sent out last season. A notice appeared in the Journal some time ago of the large quantities of Hyacinthus candicans which Mr. Kelway grows. Bed after bed was filled with them, and upwards of twenty thousand blooming bulbs will be ready for delivery in October. It is a very handsome flower of the most dazzling whiteness, and the individual blooms are very valuable for button-hole bouquets; while planted in clumps in the borders it is very striking, and is thoroughly hardy. I had a small lot of seedlings in the ground all last winter, which bloomed very strongly this summer. Those who are now going in for herbaceous plants—happily an increasing number—will find this a very welcome addition to their border bulbs. It remains a considerable time in bloom, and supports its flower stems without the need of stakes.

Although Mr. Kelway cannot vie with some of our large growers of Roses as to quantity, yet in one department he is a large cultivator—Roses in pots, of which I saw some fifteen thousand, varying in size from 9 inches to 3 feet in height, exceedingly vigorous in growth and healthy. In the houses there were also some sights to be seen, the Cucumber houses especially, where immense fruit

for seeding purposes was being ripened off of his well-known and excellent varieties Conqueror, Paragon, &c. In one house I saw two thousand plants of the strange *Scolopendrium vulgare* var. *Kelwayi*. But after all one comes back to the startling fact—twenty acres of *Gladioli*! People make much of 12 acres of *Roses*, but that is mere child's play to this. No wonder that a stately building which I saw rising up should be devoted to the

drying of these corms, or that with pardonable pride at his success he should have called his house "*Gladioli Villa*."—D., *Deal*.

AQUILEGIA JUCUNDA.

THIS pretty species is well represented in the accompanying engraving, the neat rounded form of the leaflets, and the compact



Fig. 50.—AQUILEGIA JUCUNDA.

flowers with their short tubular petals and oval sepals, being faithfully depicted. It was regarded by Dr. Fischer, who first sent seeds to the Royal Horticultural Society about thirty years ago, as intermediate between *Aquilegia alpina* and *A. glandulosa*, both of which it resembles to some extent. *A. jucunda* is, however, dwarfer than *A. glandulosa*, and the flowers are of a brighter blue tint, which is pleasantly relieved by the petals being tipped with white. It is hardy, and may be grown in a well-drained border

of light soil, where it can be protected from excessive rains, which prove very injurious to it. Plants also succeed well on the rockery, where they must be freely supplied with water whilst growing, or they will not flower satisfactorily. The species is native of mountainous districts in Siberia.—R.

THE WOOD VETCH.—I have a word or two to say in favour of *Vicia sylvatica* as a border plant. A specimen in my garden is in

the form of a pyramid in a back row of a large border of plants, and is nearly covered with its charming silver-coloured flowers. By pinching-in the shoots it affords a grand display through the summer. It is by no means particular as to soil, good loam and decayed vegetable matter meets its requirements. It is easily increased by seed sown in the spring. There is another of our wild Vetches that is worthy of notice and a place in our borders. The Tufted Vetch (*Vicia Cracca*) is a charming plant when well grown. It requires confinement at the root. A large pot or other vessel should be sunk in the ground for it to grow in. It thrives in ordinary garden soil, and is increased by seed sown in the spring.—VINCIO.

WASPS.

A CORRESPONDENT asks how it is that wasps are so numerous this year, when they were comparatively scarce for two years before. Wasps are always numerous after a dry spring, and more especially a dry May. If the weather be wet and cold when they first appear a very large percentage will die, but this year it would seem as if every one had lived. Hornets are later, and did not appear in large numbers till the wet month of June, consequently they are unusually scarce. It is surprising that wasps should be allowed to have their own way as much as they do, when a little organised resistance could scarcely fail to keep them in check. It is comparatively useless for one person here and there to pay a large sum for their destruction if the majority of people are apathetic till precautionary measures are of no avail, when they merely grumble at the nuisance and promise to do something next year. Those who do pay are liable to great imposition (which the many could in a great measure prevent), and at the most can only effect a temporary local benefit. If towns or districts would start some organisation for collecting queen wasps in the spring—and for the destruction not only of nests, but of the whole colony of wasps which belong to each nest, during the summer—some diminution of their numbers must soon be apparent. Should there be a dry May next year it will be quite useless for the majority of people to think of growing any outdoor summer fruit unless something is done to check the increase of wasps, for I can warrant there will be no scarcity of stock to start with.

If allowed I shall do the same as I have done for the last eleven years, and hope to be as fortunate as now in saving a considerable quantity of fruit; but again I say, Why do not everybody combine for the destruction of their common enemy? I pay 3*d.* for every wasp brought to me in spring till such time as the young insects come about, say the end of June, excepting when they are very numerous, and then half price is given. Sixpence is paid for every nest when all which belong to such nest are destroyed. If the insects are not past the grub state then the queen and the comb are sufficient for the money, but if any of the wasps have flown something more is necessary. The best way to destroy a nest and all its belongings when built in the ground is to fire a squib made with sulphur and a little gunpowder in the hole, and immediately stop it up to exclude the air and prevent the sulphur fumes escaping for a few seconds; then without loss of time dig out the nest, destroy its occupants before they have time to recover, and insert a wine bottle half filled with water in the place of the nest, so that the top of the neck may be level with the surface of the ground, and in or near the same place as the entrance to the nest was. The bottle must remain there for three days, and will catch every wasp belonging to the nest which may have been away from home at the time the nest was destroyed. Sometimes one bottle, although it will accommodate from seventeen hundred to two thousand, is not sufficient to hold all the rovers, and then it must be replaced by a second one. The bottles must be clean and have no scent with them, or the wasps will hesitate about entering. You may generally see, when a nest has been merely destroyed without any provision being made to catch the absent insects on their return, that it appears as strong as before it was disturbed, but not a wasp is to be seen after the third day when managed in the way I recommend. Sometimes a nest is so situated that a squib cannot be fired into it, and the comb cannot be removed, then I believe cyanide of potassium is the best thing to use; but as it is a dangerous substance with which I am not familiar I will leave the task of giving directions for its use to someone else.

Many people may think 3*d.* too much to give for a queen wasp, so it is if you can have it caught for less, and I have no doubt that school boys would gladly bring half a dozen for that sum; but it takes considerable skill to catch them, and I am afraid that if we left them all for the school boys many would escape; nevertheless a great many thousands might be caught by boys if clergymen and schoolmasters would move in the matter.

Understand that every wasp seen before the middle of June is a queen, and liable to have a nest of ten thousand at least. I lately estimated the number of cells in a rather large nest, and made out nine thousand of them. A great many of the young had flown, and fresh eggs were laid in their places, and I have reason to believe that there is often more than one succession of young insects from the same cells, therefore ten thousand is a comparatively small family.

I have this season to pay for 1192 queens, and this leaves out a goodly number killed by myself and family. About 230 nests have been destroyed within a mile of the garden up to the present time, but there is more than enough left for stock now.—WM. TAYLOR.

WASPS are quite a plague. Our late Gooseberries that we hoped to save are scooped out completely, and nothing in the shape of fruit escapes their voracity. Although we have destroyed a hundred nests within a radius of less than half a mile, and trapped a large number of insects in bottles and handlight traps, still they swarm in the fruit quarters. Having thrown some waste fruit away it was soon covered with wasps, and I tried the effects of a dose of nicotine soap; it had the effect of instantly killing most of them. This seems to me a more humane method of destroying wasps even than either bottles of sweetened beer or the torture of starvation in handlights, as by placing the garbage fruit in heaps the wasps may be destroyed in an instant by syringing with nicotine soap, 8 ozs. to a gallon of water, as hot as the operator likes to use it, or it will answer cold. A few heaps of fruit will attract the representatives of a wasp nest, and if the application is repeated they will soon be disposed of. Taking the nest is of course the most speedy method of destruction, and the other will dispose of the stragglers. Wasps will not touch anything impregnated with nicotine soap, therefore fresh baits must be used.—G. ABBEY.

SYRINGING PEACH TREES.

It is necessary to allude to the importance of syringing Peach trees after the fruit has been gathered in order to keep the red spider in check. An instance recently came under my notice where the leaves were entirely falling off prematurely through the red spider. The trees in question had evidently been neglected after the fruit had been gathered. This is a practice that is too common. It is not surprising that we frequently see puny fruit and sickly plants when subjected to such treatment. If cultivators who practise these systems knew the result consequent upon the treatment, they would preserve the foliage of the trees in a healthy state. This keeps the trees healthy and vigorous, and abundance of large fine-flavoured fruit is the result. The other plan rapidly impedes the luxuriance of the trees until at last they are exhausted, the trees become diseased and gradually die off, bearing, perhaps, for a few years poor ill-flavoured fruits. If water is freely employed at the roots and the foliage well syringed red spider will rarely appear upon the trees.—SCIENTIA.

A WEEK IN YORKSHIRE.—No. 1.

A WEEK spent in a county so large necessarily afforded no adequate opportunity for inspecting more than a few gardens, and those not the most extensive; yet in even small and moderate-sized gardens some good result or some suggestive hint may be found that is worth recording. A rambling horticulturist sometimes finds a garden or nursery in which some feature is especially prominent. Orchids, Grapes, Roses, or what not may be the strong point, and in these cases the work in hand is usually done well. Sometimes he finds a curious garden, such, for instance, as one having a greater extent of walks beneath the surface than above it, for such a garden surely exists. Sometimes he finds, not so much a curious garden as some novel practice, such as growing Grapes in a stokehole and subsequently seeing a prize eard attached to the bunches in a large exhibition and splendid competition; and sometimes he finds an extraordinary garden. As most readers have a preference for "something extraordinary" I will endeavour to describe my last "find" first. But I should never have found this remarkable garden without a guide. A kind friend sent me the following letter—"The story of the life of Isaac Holden was given in 'London Society' of February, 1879. He has been a wonderfully successful man in business, and now spares no expense in everything he takes in hand. His residence is in this neighbourhood, and a visit from you would not prove a disappointment. There are about forty glass houses all new. The winter garden has cost about £25,000, I believe, and covers nearly half an acre. The mosaic pavement took nine Italians about three months to lay, and Frenchmen were years erecting rockery. The roof of one house is covered with Tomatoes, and

the admiration and envy of every gardener in the neighbourhood. I know every place of note within many miles, but there is not one equal to Oakworth House; and should you think it worth while to come and see the place I shall be happy to communicate with Mr. Holden and make arrangements for going. Mr. Holden's house is well worth going through. The air is renewed every half hour, and temperature kept at 60°. Twelve large boilers are in use. The winter garden has sixty rows of 4-inch pipes, in addition to coils of pipes. I have so often read of visits to gardens in the *Journal* that I concluded to write you." This invitation was irresistible, and I found myself at

OAKWORTH HOUSE.

As the hot-water piping employed in an establishment is in some degree indicative of the extent of the glass structures, it may be well at the outset to publish a return under this head that I asked for and obtained. It is a plain unadorned statement by Mr. Holden's plain, practical, and industrious gardener Mr. Shaw. "The vineries contain 4000 feet of 4-inch pipes, heated by one of Weeks's and one of Lumby's (of Halifax) Paragon boilers. The other block of houses, containing Pine pits, plant-preparing houses, &c., are heated with the same kind of boilers, and contain 7000 feet of piping. The winter garden is heated by the horizontal tubular boiler, and contains 7500 feet of piping. We are having another boiler put in to assist in severe weather or in case of a breakdown—one of Keith's of Arbroath. The stoves, &c., adjoining the winter garden are heated by two of the horizontal tubulars (Byram's of Bradford), and contain 11,000 feet of piping." We have thus 29,500 feet of 4-inch piping in one private establishment. That is extraordinary enough, and especially when considered with the fact that the owner of Oakworth House once worked for as low wages as perhaps any gardener has done who reads these lines.

What a lesson this one life teaches! It shows what may be accomplished by unflagging perseverance and a dogged determination to achieve success. It shows the colliers' boy, once receiving the rudiments of education in a thatched cottage, and now occupying a princely home. It tells of his first earnings as "drawboy" to hand weavers, of his studies at night-school after 8 P.M., of his alternate term of work and school according as the means of his father permitted the latter, of his learning Latin and Greek and becoming a school teacher, of his studies in chemistry, of the great invention by which almost all the world benefits daily, yet not half the world knows to whom they are indebted for the simple yet important household necessity—the lucifer match. Others have reaped a rich reward in the manufacturing of this indispensable article, but to Isaac Holden belongs the honour of being the real inventor and first manufacturer as an aid to him in his night studies. As he explained before a Committee of the House of Commons the invention "cost him so little labour that he did not think it proper to get a patent, or no doubt it would have been profitable." The "story" above referred to informs us that after becoming a dominie in Scotland Mr. Holden, then a young man, was appointed book-keeper to a manufacturing firm. How he brought his inventive powers to bear in the improvement of machinery of wool-combing, how he pressed on and succeeded, founding three business establishments in France and one in England, and became the head of the greatest firm of the kind in the world, employing four thousand people, a number which equals the work of twenty-five thousand before machines were invented to do the work. Such is a bare skeleton outline of the career of this remarkable man, and his works prove he is good as well as great—a liberal benefactor to worthy objects, a hearty supporter of the religious denomination to which he belongs, a friend of the friendless, and a helper of the needy. Any notice of Oakworth House would be clearly incomplete without reference to its owner, and now having in the briefest possible manner given a faint idea of an extraordinarily successful career I will attempt a sketch of his home and garden.

Oakworth is a small village about three miles from Keighley. Its position is elevated, and overlooks a broad dale. In the hollow nestles Haworth, the goal of many literary pilgrims, for it was in her father's vicarage there that Charlotte Brontë wrote her name in history by the production of her famous work, "*Jane Eyre*." Beyond the plain are hills which meet the clouds, and the view is diversified and fine. Quite in the village of Oakworth—indeed, almost in a line with the cottages—is the Hall, the front of which is not more than 20 yards from the high road; but the cottages on either side of the mansion are masked, on one side in a remarkable manner. A fine Wesleyan chapel is the boundary of the forecourt on one side of the mansion, and on the other side a huge rockery, rises in bold and rugged massiveness above the tops of the houses, the effect being wildly picturesque. This huge pile forms a covered way to the back of the mansion, the

approach to which is through a cavern formed with blocks of gigantic size, and as rough and rude as if upheaved by some violent subterranean eruption. To subdue the effect of this great pile and to secure harmony of design immense stones half encircle the small panel garden, in which is a fountain, immediately facing the front portico, which has also a rock-like appearance; on the opposite side there is a rustic summer-house made with cement and flanked with rock, one cavernous approach leading to the chapel and another to the winter garden, the doors being faced with cement, and resemble solid stone; yet with all this stone the effect is neither harsh nor cold, for shrubs of upright and bush growth, low evergreens and trailing plants, have been freely yet judiciously planted, the result being a frontage which is unique of its kind, original in design, novel, striking, yet satisfying.

A glimpse between the chapel and mansion is obtained of the winter garden. A large dome of richly stained glass rises from the centre; there are also panels of stained glass on the sides near the roof, the spear-head-like ornamentation surmounting the spouting being gilded. The dome I understood was erected by Messenger of Loughborough; but the building—indeed, all the glass structures, with the mansion—was designed by Mr. Smith, architect, of Bradford, a relative of Mrs. Holden's, and executed under his supervision by local workmen. Externally this remarkable winter garden is rich and imposing, while internally its appearance is extraordinary. There are larger glass structures to be seen in a few public and private gardens, but none, so far as I am aware, like this in the manner of arrangement and ornamentation. As more space than can be afforded this week will be requisite for even a meagre description of this and the structures adjoining, further notes on Oakworth House must necessarily be postponed to a future issue.—A RAMBLER.

TRUFFLES.

I SEND you a tuber that I have dug out of an Oak wood, and have been informed it is eatable, but its perfume does not com-

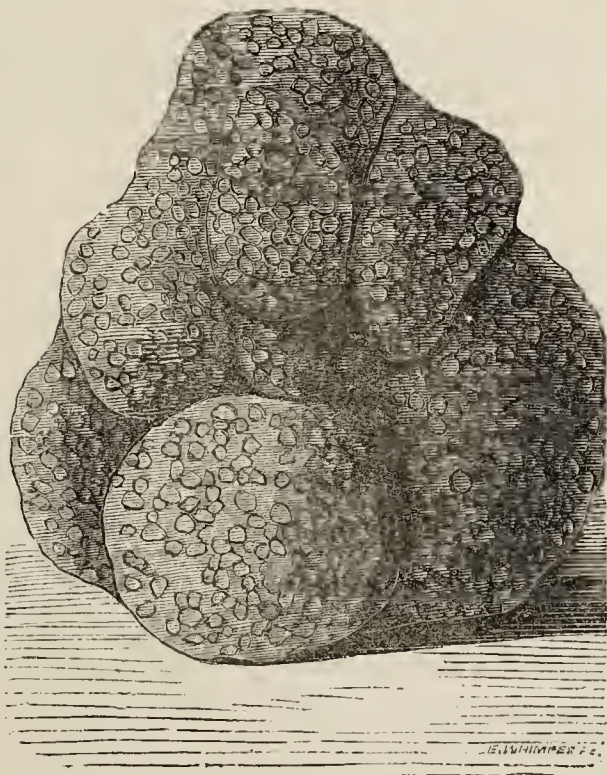


Fig. 51.—Black Truffle.

mend itself to me. Will you kindly inform me what it is, and if I have been correctly informed respecting its edible properties? —A BERKSHIRE SCHOOLMASTER.

[It is a fine specimen of the Black Truffle, and is correctly represented in the accompanying figure. Truffles are regarded as a choice dish on the tables of the affluent. They are generally found in chalky or clayey chalk soils. Just as many aerial fungi only grow on dead wood, and that of a particular kind, so the black Truffle is only met with among the roots of trees, and more especially the common and Evergreen Oak, and *Quercus coccifera*. It is among the roots of these trees that the Truffles are most abundant, and acquire a perfume that makes them esteemed all over the world.

Truffles increase like other allied fungi. When ripe they contain minute spores not exceeding $\frac{2}{10}$ th of an inch in diameter, and when the Truffle decays in the ground these produce white threads,

or mycelium, like Mushroom spawn when running, and a fresh crop results.]

ESCALLONIA MONTEVIDIENSIS.

THIS is one of the most beautiful white-flowering shrubs that I have seen for some time. I recently saw a specimen in the gardens of Mr. J. G. Mitchinson, at Park Clies, Galval, where it is trained quite 10 feet high against the front of his house, and is just commencing to flower, and cannot fail when more extensively grown to become a great favourite. It is growing in common garden soil covered with about 2 inches of gravel. It has little or no water, and it appears to flourish luxuriantly, and has been for four or five years quite exposed. This is very remarkable, for in a garden adjoining that of Mr. Mitchinson, and belonging to T. R. Bolitho, Esq., the gardener (Mr. Every) cannot induce it to flower. Speaking of Escallonia I may also add a few remarks on *E. macrantha*. As a plant for making hedges this is unsurpassed; it will bear clipping almost to the main stalk, and the hedge at the thickest part need not be more than 12 inches through. Here, as well as at Scilly, it is used very largely for this purpose, and the fields where Potatoes are grown are usually divided into one-eighth and quarter-acre squares with it, thus protecting the Potatoes from the wind and taking up scarcely any room. *E. Ingrami* is a very fine species, but is not so accommodating as *E. macrantha*.—W. ROBERTS, *Penzance*.

VEGETABLES IN AUSTRALIA.

THESE have been scarce enough sometimes there, though not because they could not be produced. The first comers were glad enough to qualify their salt junk, salt pork, and ship biscuits, the only procurable food in the settlement. With no vegetables they seized upon the top shoot of a native tree, which ever afterwards was known as Cabbage Palm. As the Tea-tree Scrub gave them a bitter substitute for Bohea, so did other native plants render service for those sighing after vegetarian fare. Bushmen usually despised the pot, unless it were the pannican for their tea, and contented themselves with damper bread and meat for every meal. Thanks to the health-giving breath of Australia this fare did them no great mischief. There are many thousands of persons in Australia who are months at a time without vegetables. As shepherds or solitary miners they might easily grow them if they took the trouble. In American wastes men have the everlasting salt pork and Beans, but in Australia flour and fresh meat form the staple diet.

An impression once existed that Potatoes would not thrive in so hot a region as Australia. Finer than those raised in southern Victoria or the Darling Downs of Queensland cannot be found; and they are as cheap as they are good—far better and cheaper than in England. As to the Cabbage family, nowhere can such be surpassed. For Cauliflowers it is truly a native clime. The markets display magnificent specimens, and at a price to excite the envy of Britishers. The Chinese, to whom Australian gardeners are much indebted for improved culture, have introduced a Chinese Cabbage, which is much relished by miners everywhere. However outlandish a place be, occupied by Queensland diggers, a Chinese Cabbage vendor will find it out. Give the Yellowface the means of irrigation, and the most barren-looking bit of bush land becomes a garden of vegetables under his hand. The health of country residents has been decidedly improved by the advent of Chinamen with the variety and goodness of the vegetables they raise.

In Queensland climate and soil are suitable for the production of an extensive assortment for the table. Whatever can be grown in any part of the world has a chance there. The plateaus of the southern districts bring forth plentiful supplies of English Potatoes, Cabbages, Lettuces, Parsnips, Carrots, Turnips, Beet, Celery, Endive, Seakale, Rhubarb, Spinach, Onions, Leeks, Cauliflowers, Parsley, Asparagus, Peas, and Beans. These, too, obtain a flavour only to be realised in a sunny land. Their richness and ripeness put them out of comparison with the watery varieties found in Britain. Then, again, upon the rather lower lands, even in the more settled fields around Brisbane, Ipswich, and Maryborough, almost the whole of the English vegetables do equally well, with the addition of those not to be grown in the British Isles. Further north, toward the seacoast or beside the inland streams, genuine tropical vegetables may be procured. Thus it is that the colony contains the entire range of them.

Yams and Sweet Potatoes have been introduced with the Taro from the South Sea Isles and are getting popular. The tuber of the West Indian Yam will often run down a yard in Queensland. There are also the Chinese and South Sea sorts of Yam. Roots of 30 lbs. weight give abundance of nutritive food, very acceptable

in hot countries. The pods of the Okra are good in soups. Maize is there, as in America, used as a vegetable when in a growing state. Melons, Marrows, Pumpkins, Squashes, Cucumbers, Tomatoes, and many other varieties are successfully cultivated. Cassava, Tapioca, and Arrowroot, growing there in such luxuriance, come hardly under the denomination of vegetables, though so agreeably diversifying the table of Queenslanders. But the Sweet Potato, so mealy and rich, is pre-eminently the root-crop of semi-tropical farmers, and is as valuable for human food as for all kinds of stock. Not only may as much as twenty tons of roots be taken per acre, but about that quantity of capital green food. The very heat, of which some immigrants complain, helps to make Queensland one of the most favoured lands for vegetables.—J. B.

ANNUALS FOR SPRING.

ANNUALS for spring must be sown in autumn, and annuals for summer must be sown in spring. Where an ounce of seed of any of the popular forms of these pretty flowers is sown in the autumn a pound is sown in the spring. This would imply that if sown in spring the display produced is generally the most satisfactory, and that resulting from sowing in the autumn correspondingly disappointing. Yet annuals well selected, sown at the right time in the autumn, and properly managed, are in every respect far superior to those sown in spring—superior in vigour of plants, size of flowers, and continuity of beauty. Why, then, has not the plan of sowing them in autumn become more popular? That is a very natural question not easy to answer. Possibly there are some people who do not desire to have their flowers early, but prefer to devote the whole of their resources to producing a grand display in summer. This fashion, however, is generally dying out, and there is a disposition now to have gardens like the fields, woods, and waysides—cheerful as early in the year as possible. There are also a certain number who have tried the plan, perhaps once, of sowing annuals in the autumn, and did not succeed as they expected, therefore abandoned the practice and did not “try again.” This is not the way to succeed. Seasons vary, and all alike are not favourable to these flowers when sown in autumn any more than they are for Wheat, fruit, Potatoes, or any other crops.

A quarter of a century's experience in growing annuals enables me to say positively that those sown in autumn and rightly managed are as certain to succeed, and more likely to give satisfaction, than the same varieties sown in spring. True, they are not alike good every year, but they are invariably good enough to be greatly admired, and I sow the seed annually with at least as much confidence of securing a satisfactory return as I do of securing a crop of Cabbages from seed sown a month previously.

The present is precisely the time for sowing seed of some of the most useful hardy annuals; and if immediately these notes appear—there must not be a day's delay—those who intend sowing order the seed promptly, and sow it the same day it arrives from the seedsman, they may hope to succeed in their object. Many people include Forget-me-nots in this category, because they are raised from seed and flower with the annuals in early spring. They are charming flowers, but it is no use ordering seed of any of them and sowing it at the present time. June, as has been mentioned in the Journal, is the time for sowing Forget-me-nots, then strong plants are provided before the winter. Such plants are fine in spring, but plants from seed sown in the autumn are weedy and very disappointing; therefore do not waste money on Forget-me-not seed now.

Among the most reliable of annuals for spring decoration are *Silene pendula* and its variety *compacta*, the latter being charming for pots. August is the best time for sowing, but they succeed fairly well sown now, and may be included in the seed order. For a glowing mass of pink in May, June, and early July nothing can surpass and few plants equal *Saponaria calabrica*. This is preferably sown towards the end of August, but succeeds well sown now. The white variety makes a pretty edging, but is not so robust and hardy as the pink. *Nemophilas* cannot be sown at a better time than immediately these notes appear. Those who have not seen a bed or mass of the blue and white varieties of *N. insignis* in mixture in May have a treat in store. *N. maculata* is pretty, but scarcely equals those named, and all of them are extremely attractive in pots in the conservatory in April. *Venus's Looking-glass* sown now will produce rich masses next May that cannot be equalled by any other plant of its colour, and the flowering sprays are most beautiful when cut and associated with other flowers in vases. The winter seldom injures this plant, and the slugs have to be hungry before they eat it. *Clarkia pulchella* in the red, white, and parti-coloured varieties are amongst the most effective of plants for large beds and mixed borders in May and June, and the present is the exact time for sowing. The Tom Thumb forms are the most effective, especially those with broad petals and semi-double flowers. For

masses or lines of yellow, or rather yellow and white, the gay *Limnanthes Douglassi* is suitable, and is about as hardy as any weed that grows. About the end of August is the time for sowing, but it will do very well sown now. *Viscarias* are among the most attractive of annuals, and sown at the same time flower with the *Clarkias*. *V. oculata* is the most constant, but *V. cardinalis* is richer. *Viscarias* are seldom destroyed by frost, but excessive wet is sometimes injurious. *Collinsias* are extremely fine in May onwards. They cannot be sown at a better time than the present; if sown earlier they make too much growth before winter, and are then apt to be injured by severe frosts. The same remark applies to *Larkspurs* and *Candytuft*. As a dwarf bright blue flower for early spring *Veronica syriaca* is pretty, and the pink and white *Virginian Stocks* are dwarf and cheerful. Other annuals might be named for sowing at the present time, but those mentioned will suffice for rendering a garden attractive in spring and early summer.

As to sowing—select an open position, and the further it is from old walls, hedges, and such green crops as *Broccolis*, *Seakale*, and *Rhubarb* the better, for it is there that slugs hide, and they will travel some distance for some of the delicate annuals. The soil should not be too rich, and if rather firm so much the better, as the object must be to induce a hardy and sturdy, not a free and succulent growth. Sow in drills a foot apart; if the present dry weather continues saturate the drills before sowing the seed, which cover very slightly with fine soil. The moment the young plants can be seen run the hoe through the soil frequently, as this not only prevents the growth of weeds, but is a greater check to slugs than many people imagine. Immediately the plants can be handled thin them out so that each plant stands singly, and at the least an inch from its neighbour. The plants then become hardy, and branch out and become vastly superior to those left to crowd and choke each other in the seed beds and patches.

If slugs commence their attacks dust the plants with fresh lime an hour after dark when the molluscs are feeding, and more execution will be done than by twenty dustings in the daytime after they have enjoyed their repast and retired to their haunts.—SPRING GARDENER.



KITCHEN GARDEN.

THE crops of Winter Spinach will by this time require thinning, and it should be done before the plants become too large, allowing sufficient space between them to prevent damping in bad weather, and keep the surface soil between the rows well stirred. The latter observation applies to all growing crops at this season, the whole surface in the kitchen garden being hoed. Thin out autumn-sown Onions to about 3 inches distance apart. Every alternate plant may be removed in spring as required.

Cabbage.—As a spring crop this is one of the most important in cultivation. Place plants from the July sowing in their permanent quarters without delay; ground that has been occupied with Onions, turned over and properly prepared, will be suitable for this crop, planting from 15 to 18 inches apart every way. Do not allow the plants from the August sowing to stand too thickly in the seed beds, but when fit prick off the required number, and thin out the rest. A batch of the latest of these plants should be pricked off in beds for spring planting. Prepare the ground for the main crop of Cabbages, the plants being placed out 18 to 20 inches apart.

Attend to the requirements of Cauliflower plants from recently sown seed and sow again. Take up the main crop of Onions, and let them be exposed for a few days before storing them away thinly in a dry room on shelves, tying the larger in bunches so that they can be removed to a cooler situation in February. Keep up a good supply of salading. Select fine dry days for tying up Lettuce and Endive. Examine plantations of Globe Artichokes, cutting away useless stems, and removing all decayed leaves, so as to admit light and air to ripen them at the base. Tomatoes require some attention now; the leaves should be removed where they shade the clusters of fruit in order to advance the ripening, also keeping the laterals closely pinched or removed. Where means are at command a first sowing of Dwarf French Beans should be made in pots, placing them in a house with a

night temperature of 55° to 60°, and as close to the glass as possible. Osborn's Forcing is the best variety for this purpose.

FRUIT HOUSES.

Vines.—The earliest forced Vines should now be pruned if the wood be brown and hard and the leaves turning yellow. The house and Vines should have a thorough cleaning, washing the woodwork with soft soap and water, and the glass with clear water, the Vines being well brushed over with a solution of soft soap, 1 lb. to a gallon of water, removing the loose bark only, and repeating the dressing if insects have been troublesome, adding half a gallon of tobacco juice to the above mixture, with a small quantity of flowers of sulphur. The woodwork should be painted, and the loose surface soil removed, supplying fresh turfy loam and a sprinkling of crushed bones. Any Vines in an unsatisfactory state may be improved by partially lifting the roots, removing the old soil and carefully laying the roots in fresh compost, but this must be done before the fall of the leaf. Vines in pots intended to be started in November ought now to be fully ripe and at rest. The soil should be kept comparatively dry, but must not be allowed to become dust dry, or the plants will be much injured at the roots. Later batches of pot Vines should now be turned outside, and have the canes secured to walls or other exposed situations. Young Vines that have made strong growth will take a long time to ripen, and should be aided with fire heat, continuing it with a free circulation of air until the wood is brown and hard, discouraging any further growth by removing the laterals as they show. Continue fire heat for late Grapes until they are thoroughly ripened, ventilating the house top and bottom. The outside border must after this be protected from heavy rain by means of shutters, tarpaulin, or any similar material, as the Grapes keep much better when the roots are not chilled by heavy autumn rains. Ripe Grapes should be frequently examined, and all decayed berries removed.

Peaches and Nectarines.—The leaves will be off or nearly so in the earliest forced house; and to induce as complete a rest as possible the ventilators should be constantly kept open, and if the lights be moveable they may be withdrawn for a time, which will prevent undue excitement of the buds and have an invigorating tendency, especially as the border will become thoroughly moistened by the autumn rains. If the lights cannot be removed see that there is no deficiency of water at the roots of the trees, for though the impression prevails that dryness at the roots accelerates ripening of the wood, it is fatal to the development of the buds. The border should never be allowed to become dry at any time, but of course a much lessened supply of water will be necessary when at rest than during growth. When the leaves have fallen the trees may be finally pruned. Only the strong growths that have not the points well matured should be cut back. In all cases be careful to cut back to a wood bud, not being deceived by a triple bud, as these in some instances form triple fruit buds, notably *Noblesse* and *Grosse Mignonne*. Thoroughly cleanse the house; and if the trees have been infested with red spider or other insect pests dress the trees at once with an insecticide, as red spider will secrete itself in the rough portion of the bark and in the woodwork. Nicotine soap, 8 ozs. to a gallon of water, at a temperature of 100° to 120°, will destroy every kind of insect, it being applied thoroughly but carefully with a brush. If the trees are badly infested it may be necessary to repeat the dressing before they are secured to the trellis. Remove the surface soil of the border, and supply fresh loam having an addition of bone dust and wood ashes in equal proportions to the extent of about a twentieth part. Partial lifting of weak trees and renovating the borders will be necessary, which should be done before the leaves have fallen, and in the case of trees that do not ripen the wood well the roots should be carefully lifted and relaid in fresh compost near the surface, ascertaining that the drainage is efficient. Do not neglect trees from which the fruit has been gathered in the succession houses, thinning out growths not required for future bearing, removing the bearing wood of the current season, ventilating freely, watering inside borders as may be necessary, and occasionally syringing the foliage. Late trees swelling off fruit will need the borders moist and mulched, and those with the roots in outside borders must not be neglected should dry weather prevail, and if carrying heavy crops weak liquid manure should be supplied. When all the fruit has

been gathered and the wood not being in a favourable condition as to ripening, gentle fire heat with a free circulation of air will be advisable, which more particularly applies to the late varieties; the midseason Peach trees will ripen the wood if the autumn be favourable, but if wet and cold they are benefited by gentle warmth and a free circulation of air.

PLANT HOUSES.

Orchids.—In the East India house the temperature should still range from 75° to 85° by day and 65° at night, which should be maintained until the end of the month, when a gradual reduction will be necessary. Give every encouragement to *Aërides*, *Phalænopses*, *Saccolabiums*, and *Vandas*, the blocks, baskets, or pots being damped every morning, and in the afternoon of fine days a syringing overhead will be of great benefit, but care must be taken not to render the sphagnum or peat soddened. Shade as little as possible—only sufficient to prevent the sun scorching the foliage. Encourage *Calanthe vestita* and vars. *Veitchii* and *Warneri*, also *Limatodes rosea* to make large pseudobulbs, for the stronger these plants are grown the finer will be the flower spikes. They should have a maximum of light, and be supplied with weak liquid manure. Too much light cannot be had in the *Cattleya* house henceforth, therefore dispense with shading, and clean the glass both inside and out, it being important that the growths be well ripened before winter. *Lælia purpurata* and *Cattleya Mossiæ* may be repotted if necessary, and should be kept in the warmest part of the *Cattleya* house to enable them to complete the growths as soon as possible; but forward plants of these which have completed their growth should have an increased ventilation; and *Cattleya citrina*, *Lælia albida*, *L. acuminata*, and *L. majalis* should be thoroughly exposed to the sun. Thorough cleanliness is of the greatest importance in Orchid culture, therefore sponge the leaves frequently, thrips and aphides being readily and safely destroyed by dipping the plants in a solution of 2 ozs. or 3 ozs. of nicotine soap to a gallon of tepid rain water, being careful that it does not reach the roots, and washing it off in about a quarter of an hour with soft water at 90°. The present is a good time to repot *Odontoglossums*, *Masdevallias*, and *Oncidiums*, giving them fresh pots, baskets, or blocks as may be necessary, employing a compost of equal parts sphagnum and fibry peat, with a sprinkling of charcoal and small potsherds. The pots must be clean, and should be drained to a depth of two-thirds, covering with a layer of sphagnum, potting moderately firmly, and keeping the base of the plant a little above the rim of the pot. Any plants not in a satisfactory condition should be carefully cleared of the old compost; remove the dead roots, and place the plants in pots just large enough to hold the roots, keeping the atmosphere as moist as possible, and carefully supplying water at the roots until re-established.

Stove.—The warm weather at the beginning of the month may induce some to retain flowering stove plants in conservatories longer than usual; but although the days are warm the nights are becoming cool, and if the plants remain in such quarters very long it must injure them for future flowering considerably. When moved to the stove care must be taken not to excite them into growth, as they will naturally be disposed to do in the higher temperature, seeking to prevent this by withholding water, but not so as to injure the foliage. The temperature should now be gradually reduced; and although stove plants do not require a long season to rest, no time is better for it than during the three closing months of the year. Fire heat will only be necessary at present to prevent the temperature falling below 60° at night, and to keep it at 70° to 75° by day. *Allamandas*, *Bougainvilleas*, and *Ixoras* that were started latest into growth will continue flowering the longest, and as flowers are now valuable the plants should be kept at the warmest end of the stove. Shading, except for tender fine-foliaged plants, should now be discontinued, and thoroughly cleanse the glass both inside and out. Tuberous-rooted *Gesneras*, *Caladiums*, *Gloxinias*, &c., as their leaves become discoloured and evince signs of ripening should have water gradually withheld, keeping them in a light airy position in the stove. *Gesneras* of the *zebrina* type should be kept well up to the glass and have copious supplies of weak liquid manure at every alternate watering, similar remarks applying to *Tydas* for winter flowering, also *Begonias*, as the stronger they are the finer will be the flowers.

Winter-flowering plants generally should have liquid manure in preference to increasing the size of the pot, and keep them near to the glass, the object being to produce compact growth.

NOTES ON VILLA AND SUBURBAN GARDENING.

Pruning Hardy Fruit Trees.—It is now getting late for the summer pruning of fruit trees, and those who have not performed this operation should no longer delay. Young standard trees of any kind should have the growth thinned out if at all crowded, but do not shorten-back that retained. Pyramidal and bush-shaped trees of either Apples, Pears, Plums, or Cherries, Morellos excepted, that have grown to the required size, and are fruitful, should have all the young growth cut back to about the fourth joints, but the younger trees that are being formed only require to have the growth thinned out where crowded, cutting to near the fourth joint, the shortening back of the remaining shoots being delayed till the winter. Hard pruning is very unadvisable where a tree is vigorous and unfruitful, as it only induces the formation of still stronger growth in greater quantities. A better practice is to thin out and leave a few strong shoots unpruned distributed throughout the tree. An Apple tree treated in this manner in 1878 is this season clothed with Apples in a manner resembling ropes of Onions. If this plan fails to make a tree fruitful, then root-pruning must be resorted to, and the present is a good time for this if not performed too severely. Standard Morello Cherries have this season been most profitable, in fact they seldom fail to bear well. The growth of these may be thinned-out if crowded, but it must be borne in mind that the next crop will be taken from the present season's growth.

Wall trees of the above kinds of fruit may be treated much the same as above advised for the pyramids. Trees having covered their allotted space to be rather closely spurred back, and the younger trees to have all leading shoots, and any required to fill up intervening spaces as the tree extends and spreads, laid in full length. Apricots to be treated similarly, but the young growth of Peaches and Nectarines for next season's crop requires to be laid in thinly. Outdoor Grapes are a failure this season, owing to the badly ripened state of the bearing wood. To avoid a recurrence of this failure, freely thin out the growth, and lay in a few shoots at intervals on each side of the main rods, stopping those with bunches to a joint or two beyond these, and those without to be left about 12 inches in length. Lay in young growth where old rods have failed of late years to bear well, and stop leading canes if weak to about 18 inches, and if strong to about 3 feet. To assist the maturation of young Raspberry canes, cut out all the old canes (those that fruited this season), and thin out the young canes if at all crowded. Keep the runners of both old and young Strawberry plants closely pinched off, and during dry weather give the plantations of the latter an occasional watering. Weeds to be kept down by frequent hoeings, choosing bright days for the operation.

VINERIES AND GREENHOUSES.

Grapes.—Keep all lateral growth stopped to a single joint at each time, and give abundance of moisture at the roots, especially where the borders are of very limited extent. The fruit ought now to be ripening fast, and the earlier in this month it is ripe the better in every respect. If it is later than the middle of this month, the probability is that it will be of indifferent quality, owing to the failing solar heat being of insufficient strength to properly elaborate the requisite amount of sugary matter, and without which Grapes will not keep well. To assist the ripening give more air both during the nights and days, and maintain a drier atmosphere. Grapes will not ripen properly in a cool house crowded with plants, and as a matter of course quickly decay under such conditions. Hence the necessity, previously alluded to, of forwarding them as much as possible in the earlier stages of growth, in order to have them ripened, cut, bottled, and stored away in a dry room before the winter occupants of the house are brought in from the open. Many amateurs' houses are imperfectly ventilated, so that air cannot be given in sufficient quantities in the usual way. Every house ought to be so arranged that air can be admitted at each light, both at the front and highest part of the roof. Much may be done in badly ventilated houses by opening the doors on warm sunny days.

Wasps and flies are remarkably busy among the fruit of all kinds this season, and have a great partiality for ripe Grapes. They may be kept off by enclosing the bunches in muslin bags; but this has its disadvantages, and a better plan is where possible to stretch scrim canvas, hexagon netting, or other similar material across the rafters or stanchions as the case may be, wherever there are ventilators, by these means excluding the pests. Seltzer water bottles, and failing these soda water or other wide-mouthed bottles half filled with a mixture of beer, water, and sugar, are wonderfully attractive to wasps and flies, and oftentimes if hung in good numbers in a vinery will save the crops. They should also be hung on the Peach, Pear, and Plum trees if the crops are of any value.

Fuchsias are now very effective in the greenhouse, and to keep them so as long as possible attend well to the watering, giving weak liquid manure often. The same remarks apply to Coleuses, which however are not of much good in a cool house later than September. Torenias Fournieri and Bailloni as they lose their flowers may be thrown away, as they are really annuals. Gloxinias and tuberous-rooted Begonias as they cease to flower should be gradually dried off at the roots, to be eventually stored away on a dry shelf. The same treatment should be given to a few plants of Begonia Weltoniensis to be saved for next season, the remainder to be thrown away.

Keep the flowers pinched out of the plants of Chinese Primulas, and shift the smaller plants into the flowering pots, and keep the frames somewhat closer till established. Give abundance of air to the largest and well-established plants. Cease to pinch back the plants of Salvias, Eupatoriums, Browallias, Abutilons, Heliotropes, Salvias, and other winter-flowering kinds, and shift into larger pots any that may require it. Keep trained Mignonette closely pinched back, and still prevent Zonal Pelargoniums from flowering, and let them have all the sunshine possible, and they will then give abundance of bloom during the earliest part of the winter.

Striking Bedding Pelargoniums.—As was anticipated much difficulty is being experienced in striking the choicest varieties of these; owing to the very succulent growth made whole pans of variegated sorts have decayed at the base, and that too before any water was given. Where long enough they have been cut afresh and placed in the sun for two days previous to being again inserted. All cuttings taken off late were served the same, and the pots and pans when filled were at once placed on sunny shelves under glass, and no water given for at least a week.

TRADE CATALOGUES RECEIVED.

Francis and Arthur Dickson & Sons, 106, Eastgate Street, Chester.

—*Catalogue of Bulbs.*

The General Horticultural Company (Limited).—*Catalogue of Bulbs.*

Hooper & Co., Covent Garden.—*Catalogue of Bulbs.*



* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Book (S. M. W.).—We quite understand the subject of the book of which you desire the title, but so many works are incidentally alluded to in articles that we are unable to find the one you need unless you can suggest a nearer date, or can state the subject of the article in which the book is mentioned. We have endeavoured to find what you want, but have failed in our search. If however, you can aid us by a further suggestion we will readily search again.

Exhibiting Araucaria excelsa (T. C. Smith).—It is a greenhouse evergreen tree, and cannot properly be excluded from a class for "stove and

greenhouse plants" any more than can Palms, which are also either stove or greenhouse trees.

Mildew on Gooseberry Leaves (A. S.).—There have been insects on the bushes as on other trees adjacent, and where these abound glutinous matter is invariably found on the foliage, and this is often taken possession of by a fungus, as in the leaves you have sent. If these are a fair sample, the fungus will do no harm to the bushes; but if other leaves are much more infested, dust them with fresh lime or sulphur.

Pruning Raspberries (Idem).—It is an excellent plan to remove the old canes from Raspberries at this season, and also to remove superfluous growths, but the canes remaining must not be cut to the height required for fruiting next year. You may remove the tops of any that are very tall, and further shorten them after the leaves have fallen, but topping the canes now is not essential.

Exhibiting Zonal Pelargoniums (San Juan).—We are unable to answer your question, but if you write (enclosing a stamped directed envelope for reply) to Mr. Cannell, Swanley, Kent, who was a large and successful exhibitor at the show you name, he will either be able to answer your question or give you information of equal value on the subject to which it pertains. We are glad your show was so successful.

Conifers Unhealthy (X. Y. Z.).—Many Conifers were much injured by a sudden and severe frost that occurred last November, and then the protracted and almost arctic winter following caused the death of many specimens, also of shrubs in various districts. We have no doubt whatever that your trees and shrubs were injured by the frost. Your gardener appears to have done all that is possible to restore them, and we are unable to suggest any further remedy.

Vines for Planting (Old Subscriber).—If you will state what your object is in growing Grapes—whether you require a supply of good Grapes over a long period, or as many varieties as you can cultivate, or a heavy crop of easily grown Grapes all ready at the same time, we will endeavour to answer your question. You must also inform us whether you have made preparation for growing those Grapes that require a hothouse temperature to produce them in fine condition. You afford no data whatever to enable us to give a reply that will be useful to you.

Cutting down Cordyline australis (J. Mackenzie).—As your tree is healthy it will in all probability push forth fresh growths at any point at which you may cut it down. We have seen specimens cut down to the ground, and they have grown again freely; occasionally, however, we have known them when cut down "sulk and die." We would not hesitate to cut down a healthy specimen, and by syringing the stem frequently we should expect fresh growths to issue in due time.

Dividing Alpine Plants (T. J.).—Some of the plants you name are liable to damp off when divided in the autumn, especially if heavy rains occur and are continued more or less through the winter. A safer time for dividing and replanting would be just when fresh growth is commencing in the spring. The Heaths may be repotted now, if they need repotting, and the work must be done with great care. There is much danger in overpotting these plants, especially if the work has to be done and the plants managed by amateurs.

Fruit Trees on Grass (Busy).—If the trees have attained a good size, are healthy, and grow freely, they will probably sustain no injury by permitting the grass to grow close to their stems; but, on the contrary, may bear more freely, but the fruit will not be quite so fine as before. If the trees are at all weakly and stunted a mulching of manure or dressing of rich soil would be better than a covering of grass over the roots. You will now have no difficulty in determining the question. We are unable to reply more explicitly, as you did not state the age, size, and conditions of the trees. Your other question shall be answered in a future issue.

Insect on Cineraria Roots (W. Copeland).—The woolly insects to which you refer had quite shrivelled in transit, and were not recognisable; the brown grubs were probably conveyed to the pots in the soil or manure employed in potting. We should first try the effects of clear lime water as used for expelling worms from pots, and if this has not the desired effect should have recourse to paraffin. But this must be used with great caution. We have found that half a fluid ounce mixed in a gallon of soapy water has destroyed the aphides on Lettuce roots without injuring the plants, but we are unable to say if paraffin at that strength could be safely applied to Cinerarias. Try it of different degrees of strength with a few plants that you can afford to sacrifice, and carefully note the effects a week afterwards on the roots and aphides, obliging us with the result of your experiments.

Scale on Vine Leaves (T. M. C. Lincoln).—The leaf sent is much infested with scale, not mealy bug, and the insects being on the upper surfaces of the leaves are not easy to destroy; indeed the only safe plan you can adopt is to wash them off with a sponge and strong soapy water—a rather tedious process, and we think not absolutely necessary if the Grapes are ripe or cut, and the foliage is approaching maturity. We would not permit the leaves to remain until they drop off, but after they have fairly assumed their autumnal tint we should take them off by hand, leaving the footstalks to ripen and fall naturally. If you do this, and burn the leaves, you will destroy the bulk of the insects. Prune early and scrub the rods thoroughly with a strong solution of soft soap—5 or 6 ozs. of soap to a gallon of water, to which may be added half a pint of tobacco water, using it as hot as can be borne by the hand. Wash also the woodwork of the house, cleanse any plants that may be in the structure, and if the border is inside remove the surface soil to the depth of a few inches and add fresh compost. If you carefully carry out these suggestions you may possibly succeed in extirpating an injurious pest. A sweet glutinous substance is generally present on leaves where scale abounds, and it is this that attracts the flies to which you refer.

Lopping Trees (A Gardener).—It is always desirable to endeavour to remove grievances in an amicable manner. Probably if you courteously inform your neighbour of the injury you are sustaining by the overhanging branches of his trees he will aid you in removing them. If he ignores your complaint you had better write and inform him that you intend on a certain day to cut off the overhanging branches, and that you will be glad of his presence or that of his representative on the occasion. If he takes no notice of this intimation you will be justified in cutting off the branches, but you must be careful to cut them only where they actually hang over the fence; also prune them in a neat workmanlike manner, so that there is no splitting or splintering of the wood or tearing of the bark below the parts at which the branches are severed. You cannot then be accused of doing undue injury to the trees.

Ficus elastica Unsatisfactory (J. B.).—The plant has lost its lower leaves either by the soil having been too dry at some time, causing the roots to shrivel, or too wet, causing them to decay; or possibly the room was too cold at

night during the winter. Many plants were greatly injured last winter by the latter cause. You may adopt the plan you propose of striking the top, and possibly you may succeed. The pot should be so placed that the base of the lowest healthy leaf is covered with soil. Turfy loam, peat, and leaf soil in equal parts, with abundance of sand and crushed charcoal, will be suitable, and must be kept constantly moist. Established plants and Palms will grow well in a compost of turfy peat with a third of leaf soil and a sixth of sand and small lumps of charcoal. Your question on the cost of heating is unanswerable, as so much depends on the apparatus and position of the house, and much more on the character of the weather. You cannot have anything better than a mixture of ordinary house coal and coke as fuel.

Red Spider on Melons (*Subscriber*).—If the Melons are on a trellis and you can syringe the under sides of the leaves you may dislodge a great number of the insects and benefit the plants. The water should be directed with as much force as possible to the foliage without injuring it. If you cannot syringe the under surfaces of the leaves you must sponge them with a solution of soft soap and tobacco water of the strength that has so often been recommended in our columns, or 4 ozs. of nicotine soap dissolved in a gallon of water will answer equally well. Syringe the Passiflora violently with the same solution, or a thorough washing with pure water will be of great benefit. The moisture will not do the slightest harm to the Grapes if you ventilate the house freely, employing a little fire heat if necessary.

Mildew on Grapes (*S.*).—The berries were much rubbed in transit; still traces of mildew are apparent, but we think it will disappear if you employ fire heat, as it will certainly be to your advantage to do, and ventilate the house carefully. We do not think that mildew is the sole cause of the injury to the berries, but having employed no fire heat the moisture has condensed on them at night, then on opening the ventilators possibly a little too wide and a little too late in the morning evaporation has been sudden and excessive, and hence the "specks and shrivelling." Lady Downe's Grapes in the state that yours are should have a night temperature of 65° with the top ventilators opened an inch all night. Before the temperature increases to 70° in the morning admit more air, and continue opening the ventilators wider in advance of the increasing temperature until the front and top lights are thrown wide open when the temperature approaches 85°. Examine the border a foot or more below the surface, and if the soil is at all dry give a heavy watering. You may damp the house once at midday, but it must be dry in the afternoon when you commence closing the ventilators. With this treatment intelligently carried out we think the crop will ripen satisfactorily; but if the mildew does not disappear dust the parts affected with sulphur, which can be blown off again in the course of three or four days with a pair of bellows.

Early Harvest Apple (*Ramallo*).—The above is the name of the Apple of which you sent us three specimens. As showing the importance of submitting adequate examples of fruit sent to be named, we may state that any one of the three sent, so much do they vary in form and outline, would have been rather difficult of identification, but the three examples rendered the matter easy. The following is the description of this Apple as recorded in the "Fruit Manual," and which you will find agrees with the majority of the fruits gathered from your tree. "Fruit of medium size, 2½ inches wide, and about 2½ high; round. Skin smooth and shining, pale yellowish green at first, but changing to clear pale waxen yellow as it ripens, with a faint blush of red next the sun, and set with imbedded white specks, particularly round the eye. Eye small and slightly closed, set in a round and shallow basin. Stalk half an inch long, inserted in a rather shallow somewhat russet cavity. Flesh white, tender, crisp, and juicy, with a quick and pleasant sub-acid flavour. An estimable and refreshing early dessert Apple of the first quality; ripe in the end of July and the beginning of August. The tree is a healthy and free, though not a vigorous grower, and an abundant bearer. It is well adapted for dwarf or espalier training when grown on the Paradise stock, and ought to find a place in every collection however small. Though of American origin, this variety succeeds to perfection in this country, a qualification which few of the American Apples possess."

Potatoes (*A. S.*).—1, We presume the gentleman, whom you do not name, either renders the shed frostproof in winter or removes the Potatoes to a place of safety. That is what we should do. Potatoes are ripe when the skins are firm, but the tubers will keep well if dug up before they are ripe, the disease being absent, for thinly spread in a dry place they soon form firm skins. 2, Potatoes have attained their "proper eatable size" when the foliage turns yellow in the autumn; but to evade the disease some cultivators dig their Potatoes as soon as the tubers have attained a good size, whether the haulm is green or not. When taken up before the skins are set, the tubers, especially of the later varieties, are not immediately in good condition for use, but they improve considerably by keeping, and eventually become of fair quality. 3, As to the period of use, much depends on soils and seasons. From one garden, and there may be many such, we have had Magnum Bonum of excellent quality in August; grown in another garden the tubers are not good until they have been kept for some months. We had some old tubers of excellent quality on the 12th of July, but they had been kept 4 feet below the surface of the soil in dry brick pits. Early Rose grown in dry soils is good as soon as the foliage decays naturally, and continues of the same quality for several months, and the same remarks apply to Paterson's Victoria.

Roses for Buttonholes (*R. D., Liverpool*).—No Roses are equal to the Teas for this purpose, but Moss Roses are often acceptable. Hybrid Perpetual Roses are too large, Général Jacqueminot being perhaps the most useful, and we think fifty plants of it would be more profitable than one plant each of any fifty varieties that could be selected. Teas, however, are the most suitable, and it will be better for you to have a number of plants of a few varieties than a large number of varieties represented by one or two plants each. For roofs and walls grow Maréchal Niel, Gloire de Dijon, Madame Trific, and Cheshunt Hybrid. Near walls and in other positions grow Niphetos and Isabella Sprunt in large numbers. Madame Falcot, Lamarque, Madame de St. Joseph, Marie Van Houtte, Safrano, Mons. Purodo, and Catherine Mermet are also suitable. Some others may be equally good, but we have already named too many, as those who grow buttonhole Roses for sale find it to their advantage to grow few varieties. A number of the Tea Roses should be grown under glass, the others in the open air, to be protected if needful during the winter months. Some of the most hardy of the Teas are Madame Berard, Bouquet d'Or, and Madame Bravy. Mrs. Bosanquet is also suitable for outdoor culture, and the white Boule de Neige and Baronne de Maynard afford a profusion of white flowers, but not tea-scented. They will succeed well in your soil on the Manetti stock. Your other questions will be answered next week.

Name of Fruit (*Mrs. Edwards*).—The Grapes were smashed flat in coming through the post and were beyond identification. Fruit should never be sent in paper boxes, but in tin ones.

Names of Plants (*W. W. A. Nairn*).—*Alchemilla alpina*. (*K. T.*).—We

never received worse specimens for naming—single flowers thrown loosely in a dry box with no foliage. The *Thunbergia*, however, is *T. alata*. No one can name the *Mesembryanthemum* without seeing a fresh spray with foliage as well as flowers. (*A. Parkin*).—1, *Mesembryanthemum tenuifolium*; 2, *Rudbeckia Newmanni*; 3, *Plumbago capensis*. The flowers were admirably packed, and arrived as fresh as when cut. Wet moss was tied round the stalks, and the bunches placed in a small tin box and made firm with a little slightly damp moss. (*Subscriber*).—1, *Scolopendrium vulgare cristatum*; 2, *Adiantum cultratum*; 3, *Selaginella Willdenovii*; 4, *Onychium japonicum*; 5, *Neottopteris australasica*. (*K. H. H.*).—The portion of a frond you sent is not sufficient to enable us to judge of the habit of the plant, but it appears to be *Adiantum formosum*. (*E. M.*).—1, *Armeria maritima*; 2, *Sedum spurium*; 3, *Potentilla recta*; 4, *Achillea Ptarmica flore-pleno*. (*J. Begbie*).—*Campanula rotundifolia*. (*Miss L. Bailey*).—1, *Enanthe fistulosa*, common Water Dropwort; 2, *Antennaria margaritacea*, Pearly Everlasting American Cudweed; 3, *Lythrum Salicaria*, Purple-spiked Loosestrife; 4, *Lysimachia vulgaris*, common Loosestrife. (*C. A. Locke*).—The specimen with small leaves is *Fuchsia procumbens*, the other is *Lysimachia vulgaris*.



POULTRY, PIGEON, AND BEE CHRONICLE.

THE CULTIVATION OF LUPINS.

LUPINS are of three varieties, indicated by the colour of the flowers, which are yellow, white, and blue, and are well known in our gardens. They are cultivated as fodder plants extensively in Germany, France, and Belgium, the yellow variety being considered the best, because it throws more leaves in proportion to the stems. It is mostly seen in northern Germany and Prussia, where it is considered important for use in the green state as fodder, and for the seeds, which in those countries come to perfection. It is esteemed by the farmers there because it will thrive upon the poorest sands, upon which no other leguminous crop can be grown. We have not grown either variety, but our neighbouring farmers have at least tried the blue-blossomed variety. We will first allude to the policy of growing it at all, for upon the poorest sands there is no crop to compete with it; but still we must consider that these soils may be made useful in some other ways, such as the planting of Larch or other Firs. If, however, produce for stock is required Gorse may be grown, which will yield a considerable amount of produce as food for dairy cows, horses, &c., as described in this Journal, September 18th, 1879. It is also true that light sands may be laid into pasture, but cannot be made to yield a profitable crop under ordinary management, especially in very dry summers. The home farmer, being unlike a tenant occupier of the land, can therefore choose the crops and the style of farming best adapted to the soil and climate which he has in hand. It is said that this crop is only adapted to light soils, but we have seen large and abundant crops of green fodder produced upon strong soils. On heavy land it may be ploughed-in as a green crop, and the analysis shows that the haulm of Lupins is well calculated not only to manure the land chemically, but mechanically also, owing to the enormous bulk, said to reach in favourable seasons from 16 to 21 tons per acre. This quantity of luxuriant haulm ploughed-in—the same as Mustard, &c., is often done—for manure cannot fail to answer a good purpose upon every variety of heavy land. The only point seems to be that a fine tilth, the nearest approach to sandy land in condition, is really necessary.

Dr. Voelcker's essay, in the "Journal of the Royal Agricultural Society for 1860," on the composition of the yellow Lupin, and a soil suitable to its culture, gives an analysis of the composition of yellow Lupins cut down in a green state. There is about as much water in Lupins cut down green as in the Cabbages. The amount of mineral matter is likewise nearly the same in both, but the proportion of albuminous or flesh-forming matter is greater in Lupins than in Cabbages. The seed required for this crop should

be obtained from Germany, for in our climate the crop is found to ripen unevenly, and in some late seasons does not produce seed of sufficient ripeness for use except to a small extent, particularly as the seed always ripens irregularly. The seeds of the first flowers begin to ripen when the top of the plant is still blooming, and for that reason the plant must be cut before finishing its growth. On seeding the land the seed should be drilled or dibbled in rows at about 20 inches apart, so that the weeds may be killed by the horse hoe. Mr. Thos. Crisp of Butley Abbey, in a letter to the Council of the Royal Society, says, "My attention was first directed to the growth of the Lupin by Baron Herm. von Nathusius of Hundisburgh in Prussia, who in 1856 was kind enough to give me two bags of seeds—one of the blue, the other of the yellow variety, which I planted upon what is here called poor blowing sandy land, and the productiveness of the plants greatly surprised me. In 1858 I drilled about 1 bushel per acre of seed upon 18 acres of poor land, from which I obtained fifty waggonloads of sheaves. The luxuriance of this crop quite astonished all that were acquainted with the sterility of the soil, and the quantity of grain before harvesting was estimated by various persons at from 40 to 50 bushels per acre." Mr. Crisp goes on to say that "In a letter I received from the Baron, December 18th, 1858, he states 'that we have had here (in Prussia) the most unfortunate season I ever remember. We have lost all our Clover layers by excessive dryness, and the Lupins are the only crops which can help our sheep through the winter. It is really a valuable plant for some soils. I had a field of 36 acres drilled with blue Lupins in May after the Clover plant was lost, and one of my neighbours offered me 57 bushels per acre for the 36 acres, which I refused. In my letter I omitted to state that the yellow Lupin is the better for hay, straw, or chaff; but the blue is generally more productive of grain.'" Mr. Crisp closes his letter by stating, "My past success I think fully justifies me in commending the cultivation of these Lupins to the notice of occupiers of light sandy soils, to whom I believe it will hereafter prove of immense advantage. The Baron Herm. von Nathusius further states that the seeds are sown about the end of April or beginning of May, but not earlier, for it is found that the sharp night frosts are destructive to the young plant; the vegetation is also slow in the first weeks, but it soon becomes very rapid. If any rain falls the plants grow to the height of 4 feet, and a great quantity of beautiful flowers cover the whole field. There may be some conditions when the crop may be used for 'green manuring' as it is called, but generally it is a much better plan to fold off the plant with sheep, which not at first, but after they have been accustomed to it, are very fond of the yellow Lupin in the green state, and thrive remarkably well upon it. After being sufficiently dried the blue Lupin makes most excellent hay for sheep. If harvested for the seed the same plan as for Beans will answer best if the pods are mostly ripe and the crop intended for thrashing. The seeds of both varieties form very superior food for sheep, lambs, and fattening wethers. After they had been accustomed to it I have often seen them refusing cake if they had plenty of Lupins. The straw and chaff is excellent for store sheep. It has been found by many persons that Lupin hay, straw, and corn are in some degree preventives of the rot, and even sometimes remedial if the disease is not far advanced, owing probably to the bitter taste, which is an astringent and tonic. We know of no other plant which, generally speaking, is so peculiarly adapted for sheep. The seeds have been used for horses and cattle, and it is found profitable to mix them with Oats or Beans. Some farmers begin to give Lupin meal with milk to the weaning calves, and they are said to do well. But swine generally refuse them. The following is the result of an analysis of the air-dried seeds:—Water, 14 to 15 per cent.; nitrogenous substances, 33 to 36; fatty matter, 6 to 7; starch, sugar, &c., 26 to 30; woody fibre, 11 to 12; mineral matter, 3 to 4 per cent. We learn from this analysis that the Lupin seeds contain a greater percentage of nitrogenous substances than any other of our leguminous plants, so that their high value is fully confirmed by science. The cultivation of the Lupin is rather new, although many thousands of acres are now to be seen. There is no doubt but it is a real boon for the occupiers of the poorest sandy or gravelly land. Chalk and calcareous sand seem not to be favourable for it, nor wet and undrained land." There are other sorts of Lupins, particularly those from Egypt, which are cultivated in Sicily, and show a most luxuriant growth, but will not ripen except in a hot climate.

Mr. J. W. Kimber of Tubney Warren, Abingdon, in a letter to Dr. Voelcker gives some useful and interesting observations relating to his culture of Lupins in the adverse season of 1860, and states that "My farm consists principally of a soil commonly called a light-blowing sand of so fine a nature that high winds

very much disturb the surface in dry weather, which sometimes does injury to young plants, especially to Turnips; I therefore in 1860 manured a field with ten two-horse cartloads of pig manure per acre, and ploughed under. On the 3rd of April the Lupins were drilled 13 inches apart; $1\frac{1}{2}$ bushel of seed per acre. In the first six weeks the plants made but little progress, yet by the 1st of August they were just beginning to bloom, and had a most luxuriant appearance with a mass of yellow flowers, and continued in this state until the time of weighing the crop, September 24th, when two portions were weighed—one producing at the rate of 16 tons 2 cwt. 56 lbs. per acre, the other portion 21 tons. 12 cwt. 16 lbs. I think the Lupin crop will prove valuable on light sandy soils, where there is a difficulty of growing large crops of the ordinary farm plants; and I can express a favourable opinion of its feeding value, having had some sheep penned upon a portion of the crop; they made good work, eating all but the main stems. I also fed four yearling heifers whilst on pasture, being supplied with a quantity every morning, on which food they soon improved greatly, the pasture not being sufficient for them." After giving this information from both practical and scientific men, we can only say to the home farmer that in the event of his having land adapted for the Lupin—although he may hesitate to attempt their growth largely either as food for sheep or as manure for ploughing under—there is no reason why experiments upon a small scale should not be made, taking into consideration fully the foregoing statements upon the subject.

WORK ON THE HOME FARM.

Horse Labour.—In the southern and eastern counties the busiest period of harvest work is over, and in some of the midland and northern districts the harvesting of grain will be sufficiently forward for work on the land to be proceeded with. Where it cannot be yet done by the horses, if the corn has been cleared the Wheat stubbles should be commenced upon by steam power. Every day now is of the utmost consequence in preparing the land by autumn culture for the Barley of next year, and also for the Potatoes and root crops, especially the Mangold for seeding next spring. As the land is more than usually foul with couch grass and weeds this year, it is quite impossible to effect all the autumn fallowing required by horse labour alone without trespassing upon the seed time and preparation for Wheat. With steam power there will be no difficulty, for upon all those farms where steam machinery is available and forms part of the dead stock on the farm the work may not only be well forwarded, but it will also relieve the horses of the heaviest of the work, allowing them to proceed with the preparation for the green crops. When we have a dry time very few slugs will be found to injure the Trifolium if sown now by harrowing, dragging, &c., at the time of sowing only, with plenty of seed, not less than 25 lbs. per acre. When, however, the seed time is longer deferred, or the weather is wet, the land should be ploughed and seeded immediately after the plough in order that the rain may not interfere with the work. On the chalk hill farms preparation for the Wheat-sowing is usually made early, therefore the dung may now be laid out on the Clover leas, and the land ploughed and pressed as fast as the dung can be spread.

Hand Labour.—This will yet be required in connection with harvest work in the later districts. Potato digging, too, must now be done whilst the weather is dry; and generally speaking the late varieties will shortly be ripe enough to plough out. It is a good plan to put them away whilst the weather is dry; but in case they show any disease we find it a good plan to make a temporary heap covered with straw adjoining the spot whereon it is proposed to secure them for the winter, so that at the middle of October they may be examined and the heap made up to remain for the winter, being properly thatched and earthed over before the frosts commence. Some of the best covering materials are long strong grass and fern cut together from the woods or plantations, but where it can be obtained there is nothing resists frost like fresh seaweeds laid on next the tubers. The cattle now fattening in the boxes or stalls, the former being preferable, will be eating the last cutting of Clover, Saintfoin, &c. As soon as these are used up Cabbage comes in, if they have been grown to follow in succession. In some cases, however, in a season like the present, with a good plant of Clover in the Wheat or white Oats harvested early and the land in high condition, we have found the Clover grow up very quickly and strongly, furnishing a good cutting of green fodder on to November, or until cut down by frost. We find that it does not injure the Clover in future, it being better for the early spring growth than where folded off by sheep, as they often eat off the crown buds of the Clover plant too closely, whereas they are preserved without injury when the crop is cut with the scythe.

The sheep will now be feeding off early Turnips upon those farms where the practice is to sow Wheat afterwards, and if the roots are cleared away early enough it is a capital preparation for Wheat. For this system to answer the land should be dry and friable, so as not to suffer by the treading of the stock in wet weather. We have occasionally seen Mangolds fed off in this way by folding sheep on them in the months of September and October, the plan being to pull the Mangolds and allow the roots to lie on the land and become tough, and they are then better for the sheep. More care is, however, required,

as a much smaller bait of Mangolds is requisite for fattening sheep than of common Turnips, Cabbages, &c., and also a larger portion of cracked Beans or Peas should be used at first until the animals become accustomed to that sort of food; it will then be found that sheep will fatten faster upon the Mangolds than upon Turnips. This is the season for the flocks of Hampshire Downs to have the rams running with the ewes, and it is important if we wish to know the result of stock derived from certain sheep that they should be oched with different colours. The earliest Dorset ewes will be now heavy in lamb, and must be fed and cared for accordingly. In various respects in purchasing these ewes whilst pregnant it is desirable to buy them and get them home if possible without going to the fairs, and also by drifting instead of by railway carriage, as these ewes never do so well as when driven, although near to lambing.

TOY PIGEONS—THE JACOBIN.

NEXT to the Fantail there is none of the Toy Pigeons more universally known than the Jacobin. Its quaint hood and chain have been the delight of most of us in childhood; its gait is elegant and attractive, and it is a docile and tameable bird. There is much difference in this respect in the dispositions of Pigeons. Our favourites the Archangels, agile and beautiful as they are on the wing, are somewhat shy in the loft and aviary, but the Jacobin soon becomes confident. It is one of the oldest fancy varieties, and the descriptions of it given by the writers of the middle of the last century are good even of the present type of Jacobin. There then seems to have been a very similar though separate variety—the “Rough”—which was superior in one of the Jacobin’s properties—viz., “chain,” but inferior in others, especially size, for it was a large bird, whereas the Jacobin should be one of the smallest of Pigeons. The two breeds were unfortunately much crossed, and in all probability the Jacobin has in consequence never recovered the diminutive size which was once one of its chief beauties. As in the case of other varieties, so with this, we will not attempt to improve upon good descriptions, but will quote one written 115 years ago—“The true Jack is a very small bird, very little bigger than a Tumbler, and the smaller it is the better. It has a range of feathers inverted quite over the hinder part of the head and reaching down on each side of the neck to the shoulders of the wings, which forms a kind of hood something like friar’s, from whence it takes the name of Jacobin, the fathers of that order wearing hoods to cover their baldness. Therefore the upper part of this range of feathers is called the hood, and the more compact these feathers are, and the closer they are to the head, so much the more the bird is valued. The lower part of this range of feathers is with us called the chain, but the Dutch call it the eravat, the feathers of which should be long and close, that were you to strain the neck a little by taking hold of the bill the two sides should fold over each other, which may be seen in some of the best.”

To enumerate the points of the Jacobin one by one, the head should be small and round, face and beak short, eye pearl; the colour of the head white down to a line from the beak to the eye. When the white extends below the beak towards the throat the bird’s appearance is much spoiled. The hood should fit as closely to the head as possible and be well rounded; badly shaped hoods often run up into a peak. The hood externally is of the general colour of the bird with no white visible, but on the other hand the colour must not run into the white head. Faults in the accuracy of this marking are very common, and here it is that the inexperienced should look out for trimming. The chain is, as it were, a continuation of the hood, and should be as long as possible. There is difference of opinion as to its form. According to the older fanciers the curling feathers seem merely to have turned one way—viz., towards the breast; they now generally turn also towards the back, and those which so turn are called the “mane.” This makes another point—viz., the “rose,” or spot from which these curling feathers radiate on all sides. There are still some fanciers who much dislike the addition of these more modern properties of the mane and rose. The distinction between the two “fancies” can hardly be explained without the comparison of living specimens. It has always seemed to us to some extent a difference of words, for many Jacobins will appear at one time to have a mane, at another to be devoid of it, according to their position and attitude.

As to colour the head of Jacobins is, as we have said, white; the tail and flights are the same. The rule as to the latter point is not so strict as with Turbits and other breeds, for Jacobins showing some colour in the flights are often seen in the show pen. The colour of the thighs is optional; for our own part we prefer them coloured to white. The ordinary colours of Jacobins are red, yellow, and black, all of which we find very rich in this breed. Blues are pretty, but are now very rare. There are also whole or self-coloured Jacobins; these are not attractive and are

generally coarse, save the white ones, which are very pretty, and when good in points very valuable. For information to the young fancier we may say that such almost always are spotted with red in their youth, and only become pure white after several moults. The Jacobin is fairly prolific, but highly bred birds are generally bad mothers and nurses, and their eggs must be entrusted to foster parents. Another warning, too, should be given: The breed is, as we said, very confiding and, from its hood, not quick of sight; it therefore easily falls a prey to cats. Jacobins when good all round will always fetch a high price, and even fair specimens if really good in certain points are of some value.—C.

THE CREWE POULTRY SHOW.

THE Show of the Royal Manchester, Liverpool, and North Lancashire Society opened at Crewe on Thursday in last week and continued till Monday night—far too long a time for poultry, specially for chickens of the year, of which it entirely consisted. It is always interesting to see the early produce of the year, and as this Show is the first of importance at which young birds are alone eligible we think it worthy of a general notice. This time last year we were struck by the great mediocrity of chickens in general except Dorkings, which through the summer always seem to benefit by plenty of rain; this year, on the contrary, all breeds are good, and especially so the Asiatics, which in 1879 failed. We doubt if taken all round we have ever in the first days of September seen so fine a collection of chickens as those in the show tent at Crewe.

Dorkings.—The dark cockerels were an even lot in size; nearly every one of them had some one fault, and so no bird won easily. We did not like the fifth claws of the first; second was white-legged and pretty; Messrs. Smyth’s bird was in many ways the best in the class, though his comb was ugly; their first pullet was a good bird, large and short-legged; Mr. Darby’s second, good in colour. In the other Dorking classes a very superior White cockerel was first, a fair Silver-Grey being second; a good Silver-Grey pullet first, though she looked a little wry-tailed, and a large White second.

Spanish were few. The first cockerel had a long healthy face; the first pullet was the only good one in the class.

Cochins were all round certainly good classes. As usual Mr. Sidgwick’s were extraordinarily forward; the first Buff cockerel and pullet were fully worthy of their exhibitor’s fame for early birds. The former was an extremely thick and well-feathered bird; the second and third cockerels too were good, but not so massive and forward. The first pullet was very even in colour; the second short-legged and fresh-looking. The first Partridge cockerel was a remarkable young bird, son we heard of the celebrated 60-guinea cockerel last year; the second cockerel was square and very massive, younger than the first, but a little spoiled by a light eye. The first Partridge pullet was forward and the clearest in pencilling. The first White cockerel was forward and very fair bird, a little yellow; the first and second pullets were both capital birds with little to choose between them. We admired a Black 640 (Badger).

Brahmas.—The first Dark cockerel was a grand bird, such as we have not seen for a long time, square, short-legged, and densely feathered, and by no means at his best yet. The first and second pullets were beautifully pencilled but narrow, and to our idea poor in form. The first Light cockerel, good in colour but heavily hocked; second, neat in shape and not hocked; third, younger, very good in colour. The first pullet was very handsome in shape and beautifully white, but not yellow enough in legs to please us; second, too much hocked. We failed to see the awards in most of the later classes, as we visited the Show on the first day. The Hamburgs looked good all round, the Blacks being particularly forward. In Polish, first in both classes were White-crested Blacks. We thought the first cockerel’s crest too much divided and dropping; we much admired the second cockerel of the same breed. The first pullet was very forward, the second a good Silver. In the variety classes the first cockerel was a Malay, the second a Black Minorca. First in pullets was a Plymouth Rock, second a White Leghorn, and third a Malay. The heat on the first day of the Show was almost insupportable in the tent, and the birds seemed to suffer a good deal. Their general quality was such as to excite expectations of some fine exhibitions in October and November.

POULTRY.—DORKINGS.—Grey.—Cockerel.—1, E. T. Herdman. 2, A. E. W. Darby. Pullet.—1, J. A. & M. P. Smyth. 2, A. E. W. Darby. 3, T. Briden. Silver-Grey or White.—Cockerel.—1, O. E. Cresswell. 2, W. Owens. 3, E. Williams. Pullet.—1, W. Owens. 2, O. E. Cresswell. 3, D. Shaw. SPANISH.—Cockerel.—1, J. Powell. 3, S. L. Edwards. Pullet.—1 and 2, J. Powell. 3, H. Beldon. COCHIN-CHINA.—Buff or Cinnamon.—Cockerel.—1, C. Sidgwick. 2, J. Scriven. 3, T. Stretch. Pullet.—1, C. Sidgwick. 2, R. P. Percival. Partridge.—Cockerel.—1, F. J. Wood. 2, R. P. Percival. 3, C. Sidgwick. Pullet.—1, C. Sidgwick. 2 and 3, R. J. Wood. Any other variety.—Cockerel.—1, H. Beldon. 2, R. P. Percival. 3, J. Rawnsley. Pullet.—1, G. Furness. 2, A. E. W. Darby. 3, R. R. Fowler & Co. BRAHMA POOTRA.—Dark.—Cockerel.—1, Horace Lingwood. 2, R. P. Percival. Pullet.—1 and 2, R. P. Percival. 3, R. Spencer. Light.—Cockerel.—1 and 2, J. & W. Birch. 3, G. B. C. Breeze. Pullet.—1, A. Bigg. 2, J. & W. Birch. 3, G. B. C. Breeze. HAMBURGS.—Gold-pencilled.—Cockerel.—1, H. Pickles. 2, J. Rawnsley. 3, C. Lockett. Pullet.—1, H. Beldon. 2, H. Pickles. 3, S. Fielding. POLISH.—Cockerel.—1, 2, and 3, J. Rawnsley. Pullet.—1 and 2, J. Rawnsley. FRENCH FOWL.—Creve-Cœur.—Cockerel.—1, C. Sidgwick. 3, L. Booth. Pullet.—1, E. Williams. 2, R. R. Fowler & Co. Houdan.—Cockerel.—1, S. W. Thomas. 2, R. R. Fowler & Co. 3, J. Summer. Pullet.—1, E. Snell. 2, J. Till. 3, T. Yates. ANY OTHER VARIETY.—Cockerel.—1, G. Furness. 2, R. A. Boissier. Pullet.—1, W. E. Lowe. 2, R. H. Foster. 3, Rev. A. G. Brooke.

VARIETIES.

THE BIRMINGHAM POULTRY SHOW.—We have received the schedule of the Birmingham Show, which this year will begin on November 27th. The general classification is little changed, except that all the cocks of all the sub-varieties of each breed come first and all the hens follow, instead of each sub-variety of all ages and sexes being arranged by itself. The chief new feature of the schedule is the addition of two challenge cups, value respectively £50 and £30, the former for the best Black Red Game cock of the year, the latter for the best pullet of the same variety. Any exhibitor who wins one of these cups three years out of seven will retain it as his absolute property. Polish, again, are well off with twelve classes. In the classes for Pigeons we can see no important change from late years. We observe the name of Mr. M. Leno among the Judges. We fancy it will be the first time that he has officiated at Birmingham.

— **BATH AND WEST OF ENGLAND SOCIETY.**—At the Council Meeting of this Society held at the Grand Hotel, Bristol, on Tuesday last, H. G. Moysey, Esq., in the chair. Mr. Knollys, in accordance with previous notice, brought up the question of Stewards and officers of the Society exhibiting in competition for prizes, and moved a resolution affirming its inexpediency. Considerable discussion took place, it being asserted by various members that the principle had always formed an acknowledged but unwritten rule of the Society, although precedents of occasional exceptions were quoted. Mr. Acland having seconded the resolution, an amendment was moved by Mr. Moore-Stevens, but afterwards incorporated with the original motion, and the resolution was finally passed in the following terms:—"That it is inexpedient that Stewards and officers of this Society should exhibit in competition for prizes in the department in which they act as Stewards or officers."

— **CATTLE DISEASE IN LANCASHIRE.**—Information has been received by the Clerk of the Peace for Lancashire that cattle disease has broken out on a farm at Rawtenstall. Three of the affected animals have been slaughtered by order of the Inspector. The remainder of the herd consists of twenty-three cows. The Inspector states that every effort is being made to stamp out the contagion. The Bacup Inspector reports a further outbreak of disease among swine. The affected animals are promptly slaughtered.

— **HOPS IN ENGLAND AND AMERICA.**—The crops in Kent are extremely variable. Side by side are good and bad grounds. Some expected in a few cases to yield nearly a ton an acre; others, despite timely sulphuring, hardly worth picking at all. The "red mould" has been very mischievous around Maidstone; and Mr. Roger Leigh, the Member for Rochester, is said to have decided against picking his Hops at all, as they are so bad that he could only do so at a loss. Still the Hop crop is immeasurably better than that of last year, when the largest cultivator in this part of Kent had only three hundred pockets instead of the three thousand his gardens produce in a fairly good season. The Hop crop in the State of New York and throughout the country this year will exceed that of last year 25 per cent., or about 150,000 bales. In New York City a few days ago new Hops, grown in Oneida county, brought 50 cents per pound.

— **THE HARVEST AND GRAIN VALUES.**—The crops are secured in the southern counties, and nearly secured in the midland, while in the north great progress has been made in this important work. With a continuation of the fine harvesting weather and another large arrival of foreign Wheat the quotations of all descriptions again gave way at Mark Lane on Monday—English 2s. per quarter, and foreign 1s. to 2s. per quarter since last week. Barley, Beans, and Peas unchanged; Maize quiet, and unaltered in value. The supply of foreign Oats was again large, being 105,000 qrs. for the week. The low prices attracted buyers, and the bulk was cleared off, good corn selling in most cases at an advance of 3d. per qr. over the rates current on the previous week.

— **FRENCH WINE HARVEST.**—The splendid weather which has now prevailed for several weeks is having the happiest effects on the prospects of the vineyards, and it is expected that the yield will be above the average in the Charente and a portion of Gironde, and moreover of excellent quality. Not only has the phylloxera mani-

festated no fresh energy, but many of the Vines seem to be recovering, which is partly attributed to the excessive severity of the last winter. In the Midi and Burgundy districts the Vine crops look exceedingly well; and in Champagne also the quality is excellent, though the quantity is rather deficient.—(*Times*.)

— **THE BUTTER GRAIN AND BUTTER MAKING.**—The dairyman, says a correspondent of the *Prairie Farmer*, cannot be too careful in selecting his cows. The cream from one poor cow mixed with cream from fifteen or twenty good animals will injure the butter. Different opinions have been given about the grain of butter, and there are different modes of making butter. The old process of making it was to gather it into a body, then press out the buttermilk and work in the salt. The new method of making butter is to remove all the buttermilk as soon as the grains are formed, then work the salt and grains together, warm it, so it will press into a body, and it is ready for market. The old process is like mashing up ripe Strawberries to remove the hull; the new, like carefully removing the hull and leaving the berry whole and round. If the butter is made too warm while churning and finishing it an inferior article is the result. The contents of the churn should be kept between 58° and 60° to finish butter by the granulating process.

— **BREEDING FINE TURKEYS.**—We have seen it stated that Mr. Lythall prefers to breed from gobblers not exceeding two years old, and his example has been quoted as if conclusive in favour of this course. It will have been noticed, however, that the cockerel which is certainly the heaviest yet bred in England was bred from Mr. Simpson's old bird; and as the Americans have hitherto beaten us in weights, this agreement with their theory is pretty nearly conclusive, besides being borne out by the almost unanimous opinion of English breeders. The great objection to using old gobblers lies in their weight; but a way to remedy this has already been pointed out, and removes the difficulty entirely. Mr. William W. Clift, another celebrated American Turkey breeder, and formerly editor of the *American Agriculturist*, in an article upon breeding Turkeys in the *American Poultry World*, is equally strong upon the necessity of using fine matured males. "In rearing this or any other variety," he says, "almost everything depends upon the parent birds; yet in nothing are farmers more careless. The common practice is to sell off the heaviest birds at Thanksgiving and Christmas, and take the late birds of light weight for breeding. The excuse for this is that the heavy cocks wear the feathers from the hen's back, and the heavy hens are more apt to break the eggs in the nest. But these notions are old wives' fables that ought to be banished from the poultry yard. Another objectionable practice is to breed only from yearling hens. The old birds are generally sold off because they have four or five more pounds of flesh upon them. The Turkey does not attain its maturity until the third year, and the largest strongest chicks can only be secured from mature parents. So common is the practice of selling off everything at a year old or less, that it is almost impossible to get stock two and three years old. In purchasing breeders, it is the best economy to buy the heaviest birds, even at fancy prices. A ten-months cock weighing thirty pounds is cheaper at fifty dollars than a twenty-pound bird at five. Young hens weighing sixteen to eighteen pounds are cheaper at twenty dollars than twelve-pound birds at five. Large, well-formed birds, of perfect plumage, will leave their mark upon their progeny."—(From "*The Illustrated Book of Poultry*" for June.)

NEW AND OLD PRACTICES OF BEE-KEEPING.

No. 1.

"BEE-KEEPING is making such rapid progress now that stereotyped men and notions will soon be left far behind." "Modern improvements in hives and management with their enlightened advocacy are doing much to remove prejudice, dispel ignorance, and introduce a system of bee-keeping both humane and profitable." Such statements as the above are common, and honestly made by earnest and enthusiastic men. They mean well. Would that I could endorse all that they say. Who does not see that an exaggerated import is given to almost every novelty and invention of home and foreign growth? About ten days ago a clever bee-keeper came here to tell me his experience during the present season. He keeps about eight stocks, and originally belonged to

the old school of large straw hives, and was successful beyond his neighbours. Last year he adopted new ideas, and bought some bar-frame stocks and hives, and some comb foundations. In every trial this year with artificial foundations he failed, and succeeded beyond expectation with natural comb. "Indeed," he said, "I am taking all the combs out of the bar-frame hives and fixing them in straw hives." "How can you do that?" he was asked. "I cut off with a sharp knife all the cells of the old combs down to their foundations; and thus pared down to their foundations they are fitted into the straw hives, and the bees adopt them at once and erect new cells in the places of the old cells." "But surely you do not use such old foundations in supering." "Oh no, only for brood comb, and it answers first-rate." This is novel enough, certainly, and if found by experiment to be of much value will go a long way to prove that new artificial foundations will become of considerable importance in apiculture. Might not the British Bee-keepers' Association render important service to apiculture by seeking and publishing evidence for and against new and old practices in bee-keeping?

Has the world been enriched at all by the discovery of the old lady in the Highlands of Scotland? She found that bees eat barley bannocks soaked in honey, and others followed her practice by feeding their bees with pea-meal cakes and candy cakes made of meal, sugar, and water, believing the meal or flour in the cakes caused the queens of hives to commence laying earlier in spring, and also recommence laying in autumn after the breeding season had passed. This idea of meal food was widely published at the time, and many bee-keepers resolved to try the food by way of experiment. Have any or many of the readers of this Journal found meal food of advantage to bees? In my apiary I have tried this food for two or three years without any apparent advantage whatever. Long before one writer had recommended pea-meal dough to be plastered on the combs of hives in spring, and predicted advantages from it, I had tried it by putting the meal on combs and placing them on the boards inside the hives. I found the bees taking part of the meal dough, but I could not discover any advantage derived from so doing. The bees that did not have meal food either inside or outside their hives were just as healthy and prosperous and swarmed as early as those that had meal. Though bees in spring readily work on pea-meal and flour, and carry a large quantity into their hives, we have made no accurate experiments with them in order to estimate their proper value to the bees, or how they are used. Evidently most pollen and meal are required when breeding is going on in hives, and as evidently far too much is carried into some hives, for we often find one-third of the cells in the centre of hives half filled and thus rendered useless by pollen and meal. Bees in hives with little pollen in them thrive faster, other things being equal.

That the adult bees themselves eat pollen was well asserted and supported by Mr. Raitt some two years ago. In the excrements of bees he found portions of pollen grains, and also that the colour of the meal or pollen eaten determined the colour of the excrements. Nothing, it appears to me, could be more convincing than this evidence. How much or how little pollen is eaten by adult bees is a question yet unsettled. Mr. Raitt stated at the same time that the bees on eating meal overfed their queens with half-digested food from their own stomachs, and thus caused the queen to lay eggs at an untimely season. This was a new idea and an extraordinary one. Doubtless Mr. Raitt meant abundant feeding instead of over-feeding, for over-feeding would do harm instead of good; but this question of over or abundant feeding of queens cannot be proven, and therefore we need not dwell on it. Queens are seldom straitened for want of food—either honey or pollen—even when their subjects are threatened with starvation. Bees in inclement weather or when they anticipate hard times almost invariably stop breeding, the combs become empty, prosperity is checked. Does this happen from want of food or want of eggs? My opinion is that the queen being well fed cannot stop laying eggs in the egg season, but the bees will not hatch them. Ample evidence of this may be noticed in both large and small apiaries when feeding is resorted to during severe weather. Bees artificially fed during the worst weather in spring, summer, and autumn never cease to set and hatch eggs, whilst the hives when the bees are unfed become empty of brood. The administration of common artificial food—viz., sugar and water, promotes heat and contentment and brood-rearing in all hives without the admixture of meal. During the late hot weather bees in this locality did not gather honey enough to keep them, and the brood-rearing naturally came to an end about the beginning of August; but the bees artificially fed have continued to rear brood through August, and eggs are being set now during this first week of September. The question of the unfertility of bees

during inclement summer weather is a most interesting and important one. It will be well if the bee-keeping readers of this Journal succeed by artificial treatment in getting a large hatch of brood in every hive during the present month.—A. PETTIGREW.

OUR LETTER BOX.

Ducks Losing Feathers (E. T. E.).—They are too nourishingly fed. Give them soft food only, equal portions of barley meal and bran.

Converting Stocks in Skeps into Stocks in Frame Hives (J. B.).—The work of converting your apiary into one of frame hives had better be undertaken now. Any large skep which has a good population may be made into a moveable comb stock, but if the populations are thin it will be better to unite two into one at the time you take the honey. In the latter case gradually bring the stocks side by side, moving each about a yard daily, and then drive both lots into one skep. Cut out the honeycombs, and appropriate all that it is profitable to take, fixing the brood into the frames of the new hive by tapes. If you have not comb enough to completely furnish the frames give if possible foundation in the empty ones. Put your combs and frames in order, and then add the driven bees. Feed them until they are amply supplied for the winter. By this plan you save all your bees and brood, the latter being of great value, as it will furnish the bees that will survive till far into next spring. Your honey also will be secured as completely as you like to take it, while sugar becomes its perfectly sufficient substitute.

Hives (Idem).—The Cheshire hive can be had of Messrs. Neighbour, Regent Street. Mr. Green, Rainham, Kent, would be able to supply you with the description of hive to which your latter question applies. Look into any good modern handbook, and read "Uniting" and "Transferring," and consult it and our advertising columns.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1880. August. Sept.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Snn. 29		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Mon. 30		30.060	64.0	60.4	N.E.	63.7	77.0	56.7	124.0	53.3	—
Thes. 31		29.946	67.1	62.0	N.	64.0	71.7	58.4	96.6	56.6	—
Wed. 1		30.031	64.0	60.8	N.	63.1	78.6	55.1	122.3	50.4	—
Thurs. 2		30.242	67.0	62.0	N.	63.6	74.6	54.2	117.9	49.8	—
Friday 3		30.354	66.7	62.9	W.	64.0	80.7	53.3	125.4	56.4	—
Satur. 4		30.265	65.8	63.6	N.	64.6	83.3	58.4	118.9	54.3	—
Satur. 4		30.024	73.1	67.4	N.	64.6	83.3	58.8	129.8	53.3	—
Means.		30.131	66.8	62.7		63.9	78.4	57.2	119.2	53.4	—

REMARKS.

29th.—Fine, bright, pleasant day; distant thunderstorms in evening and night

30th.—Fine and bright early, cloudy day.

31st.—Fine pleasant day.

1st.—Fog in early morning, fine bright day.

2nd.—Fine, bright, hot day, scarcely a breath of wind.

3rd.—Fine, bright, and very hot.

4th.—Fine and bright, the hottest day this year.

The weather during the week was fine and bright with a continued absence of rain; the temperature was high, especially during the last few days, and all the thermometric means are above those of last week with the exception of the minimum on grass. The barometer readings were also high.—G. J. SYMONS.

COVENT GARDEN MARKET.—SEPTEMBER 8.

We have little to note this week, large supplies of Channel Island Grapes and French Pears reaching us, the latter realising good prices. Kent Cobs and Filberts are short at increased value.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons	each	2 0 to 4 0
Apricots.....	box	0 0 0 0	Neectarines..	dozen	2 0 8 0
Cherries.....	½ lb.	0 0 0 0	Oranges	½ 100	4 0 12 0
Chestnuts.....	bushel	12 0 16 0	Peaches	dozen	3 0 10 0
Figs.....	dozen	0 6 1 0	Pears, kitchen ..	dozen	0 0 0 0
Filberts.....	½ lb.	1 3 1 6	dessert	dozen	2 0 3 0
Cobs.....	½ lb.	1 3 1 6	Pine Apples	½ lb.	1 0 2 0
Gooseberries ..	½ sieve	0 0 0 0	Plums	½ sieve	1 6 3 0
Grapes	½ lb.	0 9 3 0	Walnuts	bushel	0 0 0 0
Lemons	½ 100	12 0 18 0	ditto	½ 100	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms	dozen	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney ..	½ lb.	0 0 0 0	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling	quart	0 0 0 9
Broccoli.....	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Peas	quart	0 9 1 0
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	½ 100	1 6 2 0	Kidney.....	bushel	4 0 0 0
Cauliflowers.....	dozen	0 0 3 6	Radishes..... doz.	bunches	1 6 2 6
Celery	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 0
Coleworts.....doz.	bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzonera	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots	½ lb.	0 3 0 0
Garlic	½ lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs	bunch	0 2 0 0	Turnips	bunch	0 4 0 0
Leeks.....	bunch	0 0 4 0	Vegetable Marrows	each	0 2 0 0



16th	TH	Brentwood Horticultural Exhibition.
17th	F	
18th	S	Sale of Bulbs at Mr. Stevens' Rooms, Covent Garden.
19th	SUN	17TH SUNDAY AFTER TRINITY.
20th	M	
21st	TU	
22nd	W	International Potato Show, Crystal Palace.

VEGETABLES IN 1880.—No. 1.

POTATOES AND PEAS.

WITH the exception of many Potatoes being diseased, I hear from various quarters that this is one of the best seasons for vegetables which has been experienced for a considerable time. Potatoes, however, are very much diseased, which is greatly to be regretted, as there are many vegetables we could better afford to lose than this most valuable crop. Now that the Government Committee have failed to find us either a prevention or cure for the Potato disease, and all prescriptions have proved of little or no benefit, the matter must rest with gardeners and farmers to try and find out which are the best varieties to resist the disease in the various climates, soils, and situations, and then to grow these alone. Very much might be done in this way, as no one will have grown a few dozen sorts of Potatoes without soon proving that some are very liable to the disease, while others resist it to a greater or less extent under the same circumstances.

Last year I cultivated over seventy varieties of Potatoes in the garden. Some were so much diseased that they became quite extinct, others nearly so, while some were hardly affected, and a few not at all. Thinking that last season was one of the worst ever experienced for trying Potatoes, I resolved to give all the varieties of which I had seed left another chance this year. This has not been carried on under the most favourable circumstances, as the persistent rain we had in July was much in favour of the disease, but now when lifting the crops I find with one or two exceptions that the condition of each variety corresponds very closely with the results of last year. Those which best resisted the disease last year have done so this, and the varieties badly affected then are the same now. Had I been satisfied with the result of the trial last year, and only grown the disease-resisting varieties in 1880, we might have had fine crops of Potatoes nearly or quite exempt from disease; but the experience of this season has enabled me to make a more reliable selection for future cultivation than I could have done before. Practice of this kind would, I think, lead many to obtain sound crops, and as we are now in the midst of the Potato-lifting season I advise all interested in the matter to give the subject their consideration.

Varieties which are half lost and the tubers left of doubtful condition should not be stored near a sound variety. The latter should be kept by themselves; and instead of using the best or greater part of them for cooking purposes, let the whole

of them be saved for seed, and eat the varieties which have partly succumbed to the disease.

All gardeners, indeed every possessor of a garden, has always a hankering after "variety." Growing a great number of varieties is commendable if done with the object of making a "selection," but further than this the plan should not be carried. Growing, say, fifty varieties of Potatoes may be interesting cultural exercise, but if more than the half of them are annually lost through disease it would certainly be wiser to adhere only to those varieties, no matter how few they may be, that experience proves are the most to be relied on for securing sound crops.

Respecting my selection, it will not include more than six or eight varieties, and these will be Rivers' Royal Ashleaf and the Gloucestershire Kidney for early work; and Scotch Champion, Magnum Bonum, Schoolmaster, Porter's Excelsior, and Improved Peach Blow for autumn and winter. These are the cream of the seventy varieties, being almost or entirely free from disease. Magnum Bonum has resisted the disease wonderfully this season. It has a better constitution than any Potato grown. The stems grow to a height of 4, 5, and 6 feet, and they are about as hard and tough as a piece of Filbert wood. Improved Peach Blow has done admirably well with us. It is pink and white in colour, round, rather deep in the eye, of good average size, and very prolific. Some of our single sets have produced forty fine tubers, and not a diseased one amongst them.

PEAS.

These have been very satisfactory this season. A favourable spring brought the early varieties in well, and the mid-season Peas were all that could be desired. During August the dry weather was slightly against later varieties, but prospects are favourable for a late supply. Mildew affected some of the rows to a certain extent. This I attribute to insufficient moisture at the roots, because, although all the seed was placed in the ground singly some inches apart, the top growth was so robust and became such a mass that the rain was not able to reach the roots, and artificial watering was not always convenient. Of all ways of growing Peas there is nothing to surpass a good length of row with the plants growing a few inches apart. This increases the produce in quantity as well as quality. Growing them in trenches is a good plan in dry weather, or where the soil is very light; but in heavy soil the practice is unnecessary. I have tried some dozens of varieties of Peas from many different sources, but have eliminated gradually and carefully until I have only a few of the best and most distinct.

William I. has until this season been the earliest Pea grown, but it is surpassed in this respect now by a new variety we had on trial from Messrs. James Carter & Co., the eminent seed firm, and I might say the eminent Pea firm of London. This new variety was the first of all, and attained a height of 2 feet. The pods are smaller than those of William I., but they are more abundant, are ready for gathering quite two weeks earlier, and the peas are of equally good flavour. As early Peas are so much appreciated by all, these facts will no doubt soon be corroborated by other cultivators, and this variety will take the place it merits.

As rather tall-growing, second-early, midseason, and even late varieties, Telegraph and Telephone are most valuable. For growing freely, cropping abundantly, and producing peas of

high flavour they are now well known and justly appreciated. Amongst dwarf varieties the Challengers, Invincibles, Non-suches, and others of equal pretensions must all give way to Stratagem. This variety of rare excellency grows about 3 feet high. The stems are so strong that they will almost stand upright without any support. The pods are produced most freely in pairs from bottom to top. They fill quickly and well, each pod containing from nine to eleven large peas. Small pods here and there, or just a few large peas in the middle of the pod and both ends empty, as is the habit of fruiting of some Peas we could name, are failings unknown to Stratagem. It is ten days or so later than Telephone in coming into fruit, and, as a dwarf Pea, it continues bearing and supplying a succession of its splendid pods for a remarkably long time to be a dwarf Pea. In changeable seasons the weather sometimes affects varieties differently; and in case anything should happen to any of the varieties recommended, a row or two of Omega, which is a fine late Pea, may be grown to fill up the gap.

Wrinkled Pea seed did not germinate so well last spring as the round, but all varieties should be thoroughly well ripened this year, and we may look forward to having good Peas in 1881.—J. MUIR, *Margam*.

DUTCH BULBS.

THESE have again come to hand, and it is pleasing to find that they are generally larger than has been the case for the last year or two. For securing good bulbs and satisfactory results it is very necessary for buyers to be early in the market. I do not know whether the earliest purchasers obtain the best goods, but I presume they do and act accordingly, whilst I also like to have the bulbs early so as to place them thinly in a cool room, where they move slowly under my own eye. Another reason for having the stock early is the necessity of potting the first batch early in the autumn. Another point which is worthy of impressing on those who have only a limited knowledge of the different varieties is this, that the number of varieties really worth growing is comparatively limited, and it is therefore better, when the quantity grown is more or less large rather to increase the number of bulbs of one variety than to add to the number of varieties. As a rule it is possible to purchase the bulbs cheaper by the half-dozen, dozen, or hundred, than it is to purchase them one or two of the different varieties. Suppose a batch is required to bloom early in the year, we have amongst Hyacinths Charles Dickens, blue; Homerus, red; Crown Princess, white; and Norma, blush. The earliest Tulips are Duc Van Thol, red and yellow; Duc Van Thol, crimson; Canary Bird, yellow; and the common double Duc Van Thol. Polyanthus Narcissus are represented by Paper White and Double Roman. These with Lily of the Valley and some late Roman Hyacinths give a good and cheap display till February. From that date there is no difficulty in most gardens to insure a more varied display.

Some of the best and easiest to manage are in Hyacinths Charles Dickens, Marie, King of the Blues, Mimosa, and Grand Lilas amongst blue shades; Von Schiller, Macanlay, Fabiola, Gigantea, Koh-i-noor, and Lord Wellington (double) amongst the shades of rose and red. Useful whites are Alba superbissima, Grandeur à Merveille, Mont Blanc, and La Tour d'Auvergne (double). Ida and Heroine are good yellows; and Haydn is an excellent mauve.

Good and cheap Tulips are Chrysolora, Cottage Maid, Keizerskroon, Pottebakker, Rose Gris de Lin, Proserpine, Wouwerman, and Joost Van Vondel amongst singles. I only grow one double variety—Imperator rubrum. Amongst Polyanthus Narcissuses Gloriosa, Grand Soleil d'Or, and Grand Monarque are very reliable. A quantity of Crocuses grown in pots to cease flowering just before those in the borders bloom are very attractive. The following have blooms as large as many Tulips—Albion, Caroline Chisholm, Correggio, Grande Vidette, Madame Mina, Lord Palmerston, Havelock, Sir Walter Scott, Cloth of Silver, and the largest yellow. Other bulbs which should be grown are Scilla præcox, Triteleia uniflora, Iris persica, and Iris reticulata. The earlier-blooming Trumpet Narcissi are also very attractive grown in pots. N. Bulboodium and N. Horsfieldi should certainly be grown.

Many may think that the list of varieties above given is rather restricted, but I do not find it so; and those who have an opportunity of exhibiting in spring will find it possible to select good exhibition plants from amongst the varieties named. I am not, however, writing for exhibitors, but for amateurs and gardeners who desire to render their houses gay as inexpensively as possible.

As to cultivation, the main object is to extract as much as

possible out of the bulbs, it being well known that very much depends on the growth made in Holland the previous year for the quality of the display in spring. We take every care of the bulbs after reaching us to keep them cool and free from excitement, so that a long rest may be ensured, and that as little loss as possible may be felt by the bulbs during this resting process. When they show signs of growing, as when roots are discernible and young growth is noticed from the centre of the bulb, then it is time to pot. Throughout winter coolness and darkness are very necessary, and until the young growths have been inured to light after removal from the plunging material coolness is very essential. After that heat is given according to the time the plants are wanted in bloom, though it is well to bear in mind that much better spikes and flowers are secured in a moderate temperature. Nor do the flowers last so long when they have expanded in heat. The amount of water required will also have to be regulated by the degree of heat given. When the plants are kept rather cool much water will cause the quilt-like roots to decay, while a higher temperature will cause these same roots to appropriate much water. The soil must be very open, the addition of coarse sand to the compost being very necessary. A fourth part of old Mushroom bed material, or dry cow manure rubbed down fine, should also be incorporated with the loam for all Dutch bulbs. The size of pots must be to a great extent determined by the requirements of the place. Most of our Hyacinths are potted singly and grown in 5-inch pots. Many of the Tulips are grown three to five in pots of same size, Crocuses and Scillas eight, and Double Roman, Paper White, and Gloriosa Narcissus three in pots of the size named. We also grow Hyacinths two, three, and six bulbs in a pot, Tulips and Polyanthus Narcissus more or less after the same manner according to size of pots employed, those 8 inches in diameter being the largest used. As to dates for potting—our Roman Hyacinths have been potted for some time, and the earliest Tulips, Hyacinths, and Narcissuses will be potted this week, the main quantity of bulbs being potted in October.

Perhaps a word or two would be useful to cultivators of Hyacinths in glasses. All the varieties above named are suitable for that purpose. I place the bulbs in glasses at the same time the main lot are potted, the water being kept just a little below the bulbs. Clean soft water only is used. The glasses are placed in a cupboard in a bedroom kept generally quite cold, and there they remain until about the same time the others are taken out from amongst the plunging material, say the middle of January at latest. They can be brought on rapidly or slowly, according to the temperature of the room in which they are placed.—R. P. B.

THE PLAGUE OF WASPS.

A PLAGUE of wasps this summer is no myth; the air is full of them. For every ten that are killed twenty wasps are at hand to rush into their places. The hordes which are at this moment devouring all our fruits are, in their own field of operations, scarcely to be outdone in the completeness of their destructiveness even by the locusts. Such is our experience on the southern hill slopes of Surrey.

How it happens that after an exceptionally wet and sunless summer and autumn, followed by a long and frosty winter, there are found to be this season more wasps than the memory of living man can parallel, is a matter well worth inquiry. So also slugs, which are said to perish during hard frost, have been most numerous here this year; whilst bullfinches in the spring, and blackbirds and thrushes, as well as other smaller birds in the summer, have been unusually destructive in this neighbourhood. There are clearly many things of everyday occurrence of which we know but little, and about which we should certainly become wiser if we would patiently observe and record facts before we express merely opinions.

Reverting to the wasps. They come as soon as the air is warmed by the sun, and whatever fruit is showing the first signs of ripening, upon it they alight. One or more commence operations by eating an aperture in the skin, and a cavity is soon formed, into which enter as many of the greedy marauders as the hole will contain, and soon nothing is left but the skin and the stone. They appear to eat and drink to repletion; for when shaken from the hole in the fruit they fall heavily to the ground, and seem to be incapable for some moments to rise, so that they can be easily crushed beneath the feet. They work rapidly. A tree of Reine Claude de Bavay Plum in an orchard house bearing a fine crop of fruit fit to gather was safe at 10 A.M., but at 2 P.M. half the crop was utterly destroyed by wasps. Some of the creatures even at night do not go home, but linger on the scene of their depredations, whilst some abide within the fruit which they have excavated. There is an opinion in these parts that

wasps retire to their nests at noon daily. I cannot say that I have observed this to be the case.

What can be done to mitigate the effects of this plague? The nests if found can be destroyed. One neighbour has had over a hundred nests in his grounds thus treated, others eighty, and so on. The wasps in many of these nests have been killed most easily by introducing just within the nest a piece of cloth fastened to a stick, soaked in a saturated watery solution of cyanide of potassium. The effect is, I understand, immediate death to all within the nest. The cyanide, I ought to mention, is a powerful poison, and care should be taken in its use not to breathe the emanations from its solution. Many nests have been destroyed on our own grounds. Those which were approached by a descending channel were drowned and sealed by pouring a good quantity of boiling water upon them; others on a bank, which seemed to have an ascending covered approach, were easily filled with the destructive vapour of sulphurous acid—*i.e.*, the fumes from burning sulphur at the mouth of the nest. This latter is an easy and effectual method. One nest so destroyed when dug out was found to contain sufficient comb to fill a large-sized ordinary zinc pail. All our destructive operations were carried on in the dark, for most of the wasps are then at home, and a paraffin lamp, as well as pieces of rag soaked in paraffin, were kept burning near at hand. In this way the operators were protected during the process of destruction, for the wasps fly to the flame and many are thus killed.

But numerous nests are never discovered, and as each nest may contain so many as thirty thousand wasps, the hosts in such a season as this are diminished by all our destructive agencies in no very appreciable degree. Indeed, there is no reason to think that they often travel long distances in quest of fruit. Whether one wasp can communicate to another where these alluring treasures may be found, or whether some subtle emanation from the fruit is capable of impressing from afar the organs of some special sense apart from sight and perhaps smell possessed by the wasps, has yet to be discovered. Certain it is that after destroying every nest within our ken or reach, and killing in other ways seldom less than a quart of wasps daily, bands of robbers settle still upon every Apple, Plum, Fig, Grape, Peach or other fruit that is left to us and is approaching maturity. It is all the same whether within or without the glass houses, for the wasp hovering over the whole surface of the structures finds out some minute chink or hole, and there he enters.

All that we can do is to gather some of the fruit before it is ripe, and to cover some of the trees or the best laden branches with Haythorn's netting; in this way a remnant of fruit is vouchsafed to us. Some of the Peach trees we thus enclose; and as regards bunches of Grapes, if a bag of netting deprives the Grapes of their attractive bloom it does not interfere with the flavour.

By the way, I have observed in our vinery that the wasp assails the purple Grape first, and neglects the white Grape close by its side although equally ripe; thus, the fruit of two Vines of Trent-ham Black are eaten up, whilst that of Foster's Seedling is so far untouched. So also Madresfield Court is attacked, whilst Dr. Hogg remains unscathed by its side. May the great merits and virtues of Dr. Hogg be always thus protected from hostile attack!

One cannot practise the wholesale destruction of wasps without a feeling of regret that it should be necessary to sacrifice a people showing so much of ingenuity, industry, and untiring energy. Even although they be bold and unscrupulous thieves, they are entitled in justice to have their fair side also recognised. I have this day seen numbers of them busy on the leaves of a Plum tree infested by black aphids. Perhaps they had taken to this somewhat coarse animal food when thwarted in their banquet upon the luscious vegetable diet.—A SURREY PHYSICIAN.

[Our esteemed correspondent's article was written before the publication of Mr. Taylor's notes on page 240, which we think show at least one great cause of the abundance of wasps this year—namely, a "dry spring, and especially a dry May." Destroying the queens at that season—and all wasps are queens then—is the true mode of preventing the plague that is this year so destructive.—EDS.]

LOBELIA "WHAT'S THAT."—Amongst other plants tried this year we have a Lobelia from Swanley with the above absurd name. Just fancy taking a walk round the garden with a friend, who stops at a plant he never saw before, and queries, "What's that?" and you answer "Yes!" Until the middle of August our new friend with the funny name did not at all attract my attention, but since then I have been gradually taking to it, and next year, all being well, it will be grown in quantity. Its peculiar charm is in the shade of colour, though it also flowers profusely.

With the sun shining on the plants it presents a silvery appearance, though the colour is of the faintest lilac. Lobelia Dixon's Gem is a great improvement on Lady Maedonald. There are also two new Ageratums from Swanley well worth growing.—R. P. B.

PRUNING FRUIT TREES.

THE extreme difference of the weather this autumn from that of the last three years, which were as unsuitable for ripening all kinds of fruit trees as could well be imagined, gives every hope of next season crops being full. To make the most of the weather it is, however, necessary that we should bestir ourselves and give our trees every opportunity of profiting to the utmost from the glorious change we are now experiencing. In my own case, as I found that Pears and some others would be all but failures this season, I early in the summer thinned-out spurs and extra wood, so that these have had the whole summer and autumn to develop strong buds. Apricots, Plums, Apples, and other fruits are now being pruned so as to give them every benefit of the warm air.—R. B.

MORE ABOUT POTATOES.

WE have been blessed with a marvellously prosperous season here in Devonshire. The weather from the end of April to the present time has been simply perfect. Other parts of our islands have suffered from destructive thunderstorms accompanied by hail and heavy rains, but they have happily not passed over this neighbourhood. Occasionally a refreshing shower has fallen, so that we have not experienced anything like a drought, and yet there has not been sufficient rain to hurt those crops which are impatient of excessive moisture. A most bountiful harvest has been gathered-in in the best possible condition, while the Potato crop is one of the finest on record. We have, therefore, every reason to be thankful. For Potato growers especially it is most cheering, for it appears as though a panic was rapidly setting in among them. A succession of bad seasons had driven most of us to our wits' end to know what to do next. The cry of "Something must be done" was loud and frequent, but the doctors as usual disagreed. All kinds of remedies for the disease were suggested, but all alike failed to stand the test in the hour of need. Science has stepped in, and with the aid of the microscope has enabled us to see and to take the measurement of the little fungus which is at the bottom of all the mischief, but as yet no microscope has been found powerful enough to bring to view the antidote. Now for my part, although I admit that it is a good thing to be able to see your enemies, it is better still to see the means of defeating them. Many profess to tell us how to do so. One cries "Plant deep;" another, "Plant on the surface;" another, "Pull up your stalks;" another, "Leave them on;" another, "Lift while the haulm is green;" another, "Leave the tubers in the ground until the disease has done its worst." These are but a few specimens of a multitude of contradictory directions given by cultivators who have all, it appears, carefully conducted experiments and arrived at different conclusions. This proves decidedly that as yet no real remedy has been discovered.

Disease-resisting Potatoes, so called, are another panic makeshift, the outcome of a series of bad seasons; to be tolerated indeed, but only at such times, seeing that this tendency to resist disease (and it is only a tendency at the best) is generally their only recommendation. Coarse in stalk and root, gross feeders, cakes of soap rather than balls of flour, the majority of them are fit only to be cast out to feed the pigs. Like "A LINCOLNSHIRE POTATO GROWER," I also would enter a protest against the introduction of such varieties as a step in the wrong direction. I am not one who thinks that a bad Potato is better than none at all. With the great variety of farinaceous foods which are now obtainable at a cheap rate, the poorest person need never be reduced so low as to be compelled to eat those waxy indigestible lumps which pass for Potatoes fit for human consumption in these days. Moreover, I do not despair of a good time coming, perhaps not so very far distant, when the disease cycle shall have rolled away, and the Potato plant shall again be as free from its present adverse circumstances as it was in times past.

When that happy time comes what a misfortune it would be for us or our posterity to have nothing left in our hands but coarse and inferior varieties. And yet such a calamity is by no means improbable if the present neglect of the finest and most delicate kinds is persisted in for the sake of those varieties which are more sure to produce a paying crop, by reason of greater staying qualities. Unfortunately this power to stay seems to be linked inseparably with inferior qualities in other respects. And you may be quite sure that if a Potato has any claims to be a resister of disease, it has few to be either palatable or presentable at table.

Moreover, all those varieties raised so far are sorts which ripen late and occupy the land for at least six months of the year. This of itself is a serious disadvantage. It appears to me that what we want is to get rid of all those rank-growing coarse late Potatoes, and to substitute for them something of the Early Snowflake type. I can cordially endorse most of the statements made by "LINCOLNSHIRE POTATO GROWER" in his sensible and interesting paper, but must demur to his opinion that a Dwarf Champion or Magnum Bonum would be a desirable addition. I think the aim is not high enough. What is really needed is a Potato of good flavour, white, floury, and shallow-eyed; short-haulmed, ripening early, standing wet well, cropping well, and keeping well. Try for this, raisers, and when you get it have the kindness to send me a bushel to try. Perhaps if you, Messrs. Editors, will yet have patience with me I may mention a few kinds which do well here on some future occasion. The Journal is just to hand. In it I notice "W. B. W.'s" explanatory comments. His practice is excellent, all that I objected to was the use of the largest sets for seed when smaller sets, in my experience, produce equal or better results with a smaller outlay.—R. W. BEACHEY.

TROPÆOLUM SPECIOSUM.

THE following observations upon this lovely trailer may be interesting to some of your readers. The plant alluded to in this Journal (pages 212 and 230) is in moist sandy soil, to which peat and leaf soil have been added. The large-leaved Aristolochia is growing close to it, amongst which it twines its slender branches; the roots run into the brick wall and are otherwise completely protected and shaded from the sun by herbaceous plants, such as *Anemone japonica*, &c.

I have tried in vain to grow the *Tropæolum* from roots and potted plants brought from Scotland, all of which have failed in the manner described by "M. M." Three years since a lady residing in Wales kindly sent me some roots from her garden; these grew without a check, flowering last year, and are this year growing and flowering vigorously.—E. E. P., *Richmond*.

TROPÆOLUM SPECIOSUM grows well in Cornwall in a Rhododendron bed in a deep peat soil. It has long fleshy roots, which are found nearly 2 feet under the ground. It grows also on a west wall sheltered by trees, scrambling amongst a Banksian Rose, where the soil is principally composed of decayed leaves covered with rockwork, which keeps the roots cool. It must have deep soil, and its roots protected from drought. When growing it delights in copious supplies of water.—M. G. H.

BRIGHTON HORTICULTURAL SOCIETY.

THE autumn Exhibition of this Society was held in the Royal Pavilion on Wednesday and Thursday the 8th and 9th inst., proving in number and quality of the exhibits fully equal to the many fine displays that have been produced during the past twenty-seven seasons of the Society's existence. The schedule enumerated over seventy classes in two sections, one comprising classes open to growers from any part of England, and the other those confined to growers in the county of Sussex. In the most important classes liberal prizes were offered, and in consequence the competition was in many instances very keen and the entries numerous. Plants generally were well represented, though flowering specimens were not quite so strongly shown as those which came under the denomination "fine-foliage plants." Cut flowers constituted a bright and important feature in the display, while fruit was equally good and abundant, several exceptionally fine collections being staged. The majority of the large specimen plants occupied a long and spacious marquee, in which were also placed such plants as *Pelargoniums*, *Fuchsias*, and *Coleuses*, with the cut flower classes provided for *Dahlias*, *Asters*, and *Roses*. The central portion of the marquee contained the specimen fine-foliage plants in a line or bank extending from end to end. Near each side of the marquee was a row of well-flowered *Pelargoniums* that collectively produced a brilliant effect; between these on each side of the central bed were the stages devoted to cut flowers, and at the ends near the entrances were groups of *Fuchsias* and *Coleuses*. In the handsome apartments of the Pavilion itself were arranged the groups of miscellaneous plants, the specimen stove and greenhouse plants, the table decorations, bouquets and fruit. There was sufficient colour to produce a good display, which was, however, much more brilliant at night when the apartments were lighted with gas, for then the rich green tints of the foliage, the brightly coloured flowers of such plants as *Bougainvilleas*, *Allamandas*, and *Rondeletias*, combined with the ornate character of the surroundings, constituted a scene of great beauty. The whole of the arrangements were satisfactorily carried out under the superintendence of Mr. E. Spary of

The Queen's Graperies, Brighton, who has for many years performed his task very creditably.

Plants.—The most important open class for plants was that devoted to fine-foliage plants and Ferns, of which twelve specimens, distinct varieties, were required. Three prizes were offered, the first being the "Corporation cup," value ten guineas, presented by the Mayor and members of the Town Council, the second prize £4, and the third £2. Six competitors appeared, who staged admirable collections of healthy specimens, all very close in merit. The premier collection was that from J. Warren, Esq., Handcross Park, Crawley, Sussex (Mr. Rann), for which the cup was awarded. All the specimens were exceptionally fine, but the following were particularly noticeable not only for their size, but the vigorous healthfulness which marked them:—*Croton Hendersoni*, very handsome, about 5 feet in diameter, foliage large and well coloured; *Gleichenia Mendelli* and *G. rupestris glaucescens* were both large and in good condition; *Thrinax elegans*, fine graceful specimen over 10 feet high; *Pritchardia pacifica*, in first-rate condition, with enormous leaves; *Dasyllirion acrotrichum* and *Seaforthia elegans*, excellent, the latter of great size. Mr. W. Balchin, Hassocks Gate, Cliftonville, who has several times been the winner of the cup, was on this occasion placed second, the quality of Mr. Rann's plants being irresistible. The most noteworthy specimens were *Croton pictus*, of good size and well coloured; *C. Weismanni*, also finely coloured; *C. volutus* and *C. majesticus*, all in admirable health; but four *Crotons* in a collection of twelve were rather too many. *Cycas revolutus* and *Cibotium regale* were the best of the other specimens. The third position was obtained by Miss Brodie, Eastbourne (Mr. C. Driver), with good examples; and Mr. W. Miles, 39, Church Road, was awarded an extra prize for a deserving collection. *Coleuses* were shown in good form and colour by several exhibitors. For a collection of six specimens the Mayor of Brighton (gardener, Mr. Trangmar), was awarded the chief prize, the plants being remarkably fine in every respect. They were grown in a somewhat flat umbrella shape, over 5 feet in diameter, well covered with large richly coloured foliage. The varieties were *Shrive's Seedling*, *Princess Louise*, *Golden Gem*, *William Bull*, *Sir Bartle Frere*, and *Jacob Mackoy*. Mr. Shrive, gardener to the Corporation of Brighton, followed very closely, also with good specimens, more pyramidal in form than the others, but rather less brightly coloured. *Magic*, *Glow*, *George Bunyard*, and *Shrive's Seedling* were the best varieties. *Zonal Pelargoniums* were very bright, and in some collections remarkably well flowered. The chief successful exhibitors were A. Grauville Uttermare, Esq., Withdeane (Mr. Howick); C. Armstrong, Esq., Withdeane (Mr. E. Meachin); Capt. Thompson, Withdeane (Mr. Townshend); and Messrs. Balchin and Miles; a collection of well-grown double-flowered *Zonals* from the former of the two last-mentioned being highly commended by the Judges in addition to taking the first prize in the class. *Fuchsias* were generally in fresh healthy condition but somewhat deficient in flowers, except the specimens staged by Mr. Howick; J. O. Smith, Esq., Richmond Villa (Mr. Fluck); and Mr. Shrive, for which the principal prizes were awarded. The stove and greenhouse plants which occupied the apartments of the Pavilion were very creditable and satisfactory, the *Allamandas* being particularly fine. Several neat *Stephanotis* and *Rondeletias* were also shown, but the others do not call for special comment. Messrs. Meachin, Driver, Balchin, Miles, Townshend, and T. S. Shenstone, Esq., Barcombe (Mr. Verrall), secured the most important prizes. Ferns were shown by Messrs. Driver and Meachin in admirable condition, the *Gleichenias* being especially noticeable for their freshness and vigour. The competitors were few in the open class for a group of plants arranged for effect to occupy a space not exceeding 150 square feet; but two very attractive and tastefully arranged collections were contributed, one, which secured for Mr. Balchin the first prize, being composed of a large number of effective and well-selected flowering plants elegantly combined with *Crotons*, *Dracenas*, Ferns, &c., and the other, also a meritorious group from Mr. Miles, who was placed second, contained some fine *Liliums* with *Ixoras*, Palms, *Crotons*, &c., neatly edged with *Isolepis gracilis* and *Adiantum cuneatum*.

Cut Flowers.—These constituted a very important feature in the display, and the general quality was all that could be desired. *Dahlias* were strongly represented in the four classes devoted to them. In the open class for forty-eight distinct show varieties three handsome collections were exhibited, the premier position being obtained by Messrs. Keynes & Co. of Salisbury, who staged some magnificent blooms, excellent in form, substance, and colour, and including an admirable selection of varieties. Mr. H. Cannell of Swanley, Kent, was accorded the second prize for a remarkably fine collection that was but slightly inferior to the first, the varieties being judiciously selected and tastefully arranged. Mr. W. Seale, Sevenoaks, Kent, followed with smaller but neat blooms. In the class for twenty-four fancy varieties the above-mentioned exhibitors obtained the prizes in precisely the same order, with very good representative blooms. The *Dahlias* in the county classes were also good, the successful exhibitors being Miss Melvil, Henfield (Mr. Alfrey); Mr. W. Steer, Pope Street; and Mr. Smith, Hedge Lane. Messrs. Keynes and Co. were the only exhibitors in the class for seedling *Dahlias* of 1879, four blooms of each. The chief prize was awarded for their collection, which included some handsome and distinct varieties, the following being honoured with first-class certificates:—Joseph Green, a beautiful and effective variety, the blooms of medium depth, good

full centre, and excellent in outline, the colour being a clear bright scarlet tint; Mr. Compton, a handsome flower of good depth and admirable form, high in the centre, of a rich deep purple hue; and James Vick, a flower of good substance and symmetry, the colour being an intense purplish maroon. All these are Show varieties. One Fancy variety, though not dignified with a certificate, deserves notice for its fine shape and colour—viz., Professor Fawcett, which had a ground colour of reddish purple streaked with maroon, the substance and symmetry of the blooms being first-rate. Cut Roses were numerous shown, and in fair condition for September. The most successful exhibitors in the open classes were Messrs. Mitchell and Son, Piltown, near Uckfield; Mr. W. Seale; Mr. H. Coppin, Shirley, near Croydon; Messrs. Bunyard & Co., Maidstone; and Mr. W. Balchin. Asters, Verbenas, and Marigolds were numerous and of good quality, the best being staged by the Rev. R. C. Hales, Woodmancote Rectory; Major Scott, Reigate (Mr. Morgan); Mr. H. Cannel; and Messrs. Verrall, Fowler, Stringer, Bevan, and Ward. For collections of stove and greenhouse blooms Mr. W. Balchin gained the chief awards with very bright and handsome specimens; Mr. C. Gilbert, Hastings, and G. S. Gibson, Esq., Saffron Walden, Essex (Mr. Archer), being second and third respectively. Table decorations, bouquets, and wreaths were well shown by Messrs. Miles; W. Brown, St. Mary's Grove, Richmond; S. Seale, Sevenoaks; W. Balchin; and F. Gallop, 30, Western Road, Brighton.

Fruit.—As is customary at the autumn Show of this Society fruit was remarkably well represented in point of numbers, and as regards quality the majority of the exhibits would have borne comparison with any staged at exhibitions this year. The chief interest of the display centred in the class for sixteen dishes of fruits, the first prize being a silver cup value ten guineas, presented by James Ashbury, Esq., M.P. for the borough. In this class there was no restriction as to the kinds of fruit to be exhibited, the term "dish" being defined as Grapes three bunches; Plums, twelve fruits; Peaches, Nectarines, Apples, Pears, or Figs, eight fruits—a very convenient distinction. There were only three exhibitors, although the second and third prizes were respectively £4 and £2, and the Show only of two-days duration; but many preferred entering the smaller classes. Earl Somers, Eastnor Castle, Ledbury (Mr. Coleman), was awarded the cup for a remarkably handsome collection including four varieties of Grapes—viz., Black Hamburgh; Trebbiano, the three bunches weighing 10½ lbs.; Alicante weighing 15 lbs.; and Muscat of Alexandria, all well ripened and finely coloured. Melons Old Egyptian and Golden Gem, both excellent; a good dish of Jefferson Plums; Grosse Mignonne and Bellegarde Peaches, large and well coloured; Elruge and Albert Victor Nectarines, fine; ripe brown Turkey Figs; superb Pitmaston Duchess Pears, and Belle de Bruxelles Apples, and two good Pine Apples. The Duke of Richmond, Goodwood, Chichester (Mr. F. Rutland), was second with fine examples of fruits well ripened. The best dishes were the following:—Black Alicante Grapes, fine and good colour; Royal George Peaches, Rivers' Orange Nectarine, Williams' Bon Chrétien Pears, Washington Plums, Brunswick Figs, and Pine Apples Charlotte Rothschild and Smooth Cayenne. The third position was accorded to Mr. Apted, Broadwater, for well-finished fruits comprising six varieties of Grapes rather small but well coloured, and handsome Bellegarde Peaches among others. Grapes were very fairly shown, six classes being devoted to them. For six bunches of Black Hamburghs Mr. W. Coleman was first with superb examples, large in bunch and berries, and grandly coloured. Mr. Knight followed with much smaller but fairly good bunches. For three bunches of the same variety Mr. Coleman was again to the front, followed by W. E. Hubbard, Esq., Horsham (Mr. Ford), and G. Duddell, Esq., Queen's Park (Mr. J. Spottiswoode), with creditable specimens. Mr. Coleman was first with three bunches of White Muscats, staging good examples of Muscat of Alexandria weighing collectively 11¾ lbs., but he failed to obtain a higher position than third with six bunches of the same variety, as they were somewhat green. For threes Mrs. Lambert, Bletchingley (Mr. C. J. Goldsmith), and S. Douglas, Esq., Tunbridge Wells (Mr. Bashford), were second and third. Mr. Spottiswoode staged the best six bunches in the corresponding class, Mr. C. J. Goldsmith following closely. All the other fruits for which classes were provided were also well represented both in the open section and those classes confined to the county, but it is not necessary to particularise them. The principal prizetakers in addition to those already mentioned were R. Bacon, Esq., Keymer (Mr. Hyde), The Right Hon. the Speaker of the House of Commons, Glynde (Mr. J. McLeod), R. Welland, Esq., Polgate (Mr. Cosham), F. B. Atkins, Esq., Halstead (Mr. A. Gibson), and R. A. Bevan, Esq., Cuckfield (Mr. Stringer).

Miscellaneous.—Numerous groups of plants added to the attractions of the Show, and one of the largest was that from Messrs. Veitch and Sons, Chelsea, which contained many new and choice plants of considerable beauty. Messrs. John Laing & Co., Forest Hill, London, staged a collection of Tuberous Begonia flowers. Messrs. J. Cheal and Son, Crawley, sent specimens of Cucumbers, Potatoes, and ornamental Gourds. Mr. S. Seale had a collection of Gladioli; and Messrs. Balchin and Miles also contributed largely.

The weather proved fine, and a great number of persons visited the Exhibition, especially in the afternoon and evening of each day.

APRICOT BRANCHES DYING—WASPS.—I have been examining our Apricot trees, and there is proof sufficient of what Mr. Cross-

ling says about the "borer" which he discovered in his trees. However, I am not prepared to assert that these insects are the sole cause of the branches dying off, yet the subject is worthy of more general attention than it has received. Almost as annoying as the dying-off of Apricot branches are the devastating hordes of wasps which have devoured everything before them. Our wasps go in for unripe as well as ripe fruits, and the only way to secure any fruit has been to gather it before the wasps had time to eat it up. We left the fruit on one Apricot tree, and to-day only five good fruits could be gathered. A neighbour arranged to gather his crop of Gooseberries one morning, but when the nets were removed the bushes were found to be like old Mother Hubbard's cupboard—bare. The only way to save crops is to cover them with hexagon nets. Attempting to trap the pests is merely playing with them. If next spring is dry and fine, and a large crop of fruit sets, it will be good economy to invest in a supply of hexagon netting. It lasts a great number of years with ordinary care.—R. P. B.

ACANTHUS LATIFOLIUS.

THIS handsome plant has been an object of considerable interest in my garden this year, both its leaves and flowers proving attractive in no ordinary degree. In the front of shrubbery borders and at the back of mixed flower borders the plants have



Fig. 52.—*Acanthus latifolius*.

an excellent effect, forming fine clumps, from which arise the tall flower stems bearing rosy lilac-coloured flowers. The leaves are large, rich deep green in colour, and remain in good condition until late in the autumn—a character of great value. Any moderately rich garden soil suits it, provided it is of good depth to allow the roots to roam at will. I heartily recommend all who have not grown it to give the plant a trial in some suitable position, and they will be well satisfied with the result. *Acanthus latifolius* has, I believe, been known as *A. lusitanicus*, but is regarded by some as merely a variety of *A. mollis*.—J. R.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

THIS Society's autumn Show was held on the 8th and 9th inst. in the Waverley Market, Edinburgh, the arrangement of tables, &c., being similar to former shows, the large central tables being furnished by the leading nursery firms, the other firms having tables for their produce in various portions of the hall. The plants for competition were more numerous than is generally the case, the average of quality being higher than usual. Fruit is one of the principal features at this Show, but there was a decided falling-off in

the quantity of all fruits with the exception of Grapes, while the quality was, with the exception of Peaches, below the average. A new feature, introduced for the first time this year, was the collections of Potatoes, no fewer than forty-one entries for the two collections being received. These, added to the large entries for other vegetables, made this portion of the Show a greater success than it has ever been, well as the vegetable classes are generally filled. Cut flower classes were the poorest, very few of the entries being up to the average.

The most noteworthy groups were the nurserymen's collections, the hardy ornamental shrubs arranged at the west end of the market by the Lawson Seed and Nursery Company; their central group of stove and greenhouse plants having a carpeting of small decorative plants arranged beneath tall *Dracenas*, *Phormiums*, *Palms*, and *Lilies*, and the two groups of *Todea pellucida* and *T. superba* placed in two rows round a fine standard Sweet Bay. Messrs. Ireland and Thomson filled a large table with a group of plants by far the finest and most attractive in the Exhibition. The centre of their arrangement consisted of large *Palms*, Tree Ferns and specimen *Crotons*, large specimens of *Tuberous Begonias*, of which *Acme*, *Souvenir de Louis Van Houtte*, *Lucien Penecelle*, *Vesuvius*, *Brilliant*, and *Kallista* were amongst the finest varieties; *Crotons*, *Bertolonias*, *Dracenas*, and other fine-foliaged plants were freely employed. On a smaller table the same firm staged some of the newest fine-foliaged plants. Particularly attractive were *Dracena Smithii*, *Croton Arehaldi* with long drooping leaves and well coloured; *C. Warreni* with curiously twisted foliage; *C. Weismanni superba*, more yellow than the old form. *Phyllotenus Lindenii* and *Anthurium Veitchii* were also represented by large plants. Messrs. Downie & Laird had some large specimen *Palms*, *Lilies*, good plants of *Bouvardia Humboldtii corymbiflora*, *Rhododendron Duchess of Edinburgh*, and several stands of cut flowers. Of these the best were six dozen *Dahlias*, late *Phloxes*, and a grand collection of *Pentstemons*. They also staged a collection of bedding *Violas* and *Pansies*. On the next table Messrs. Methven had a large group of fine-foliaged plants, chiefly *Palms* and Ferns, lightened by some good spikes of *Gladioli* and cut blooms of *Duke of Wellington Carnation*, which were intermixed with the dwarfier plants. Messrs. Dickson & Co.'s table was devoid of colour to a great extent, some blooms of their new cutting *Pinks* and *Carnations* and the new double *Camomile* being the only flowers employed. Messrs. Todd & Co. had a large dessert table arranged with fruit and flowers, which attracted considerable attention. From the Royal Botanic Gardens Mr. Sadler furnished a table of vegetable curiosities, consisting of *Nepenthes*, *Droseras*, *Dionaeas*, *Darlingtonias*, the *Lattice-leaf plant*, a fine potful of *Senecio speciosus*, and the curious *Oxalis sensitiva*.

Turning to the competition, and taking the most popular section first—the fruit, as previously noted, the general amount was below the average of the last few years. For the collection of twelve varieties of fruit only two exhibitors staged. Mrs. Pease, Hutton Hall, Guisborough (Mr. McIndoe), being first with *Grapes Duke of Buccleuch*, *Foster's Seedling*, *Black Hamburg*, and *Gros Guillaume*; *Melons Rosebery*, *Topping*, and *Mareellus*; *Pine Apples Queen and Smooth Cayenne*; *Peaches Walburton Admirable* and *Princess of Wales*, both extra fine; and two dishes of *Figs. C. Tennant, Esq., M.P.*, *The Glen* (Mr. McIntyre), was the other exhibitor, and was placed second. For eight kinds of fruit there were again only two exhibitors—the Dowager Duchess of Athole, Dunkeld (Mr. Fairgrieve), and the Dowager Duchess of Roxburghe, Broxmouth Park, Dunbar (Mr. McKelvie). Mr. Fairgrieve was also first for a collection of hardy fruits, in which were some good dishes of *Plums*. *Grapes* were very numerous shown, something like 170 bunches being staged altogether. The chief prizes were for twelve bunches, six black and six white. Four lots were staged in this class, none of them being up to the usual form seen at Edinburgh. Sir Wilfred Lawson, Bart., M.P., Brayton Hall, Carlisle (Mr. Hammond), occupied the first position with four good *Black Alicantes*, two of Mrs. Pince, and six unfinished bunches of *Muscats of Alexandria*; Mr. McIntyre being second, and Mr. McIndoe third. For eight bunches five competitors entered. Mr. McKelvie was first here with two very fine examples each of *Alicante* and *Gros Colman*, two good *Black Hamburgs*, and two large clusters of *Muscats of Alexandria*; the Earl of Strathmore, Glamis (Mr. Johnston), being second, and Mr. Hammond third. Mr. Hammond was again first with four bunches with *Gros Colman*, *Golden Queen*, *Muscats of Alexandria*, and *Alicante*. In the classes devoted to one kind of Grape, the pair of *Muscats* from Glamis, the two *Black Hamburgs* from Mr. Boyd, Callander Park, Falkirk, the single bunch of the same sort from Mr. Boyd, and the *Gros Colman* from Mr. McKelvie, and the *Duke of Buccleuch* from Messrs. Thomson, Clovenfords, were all especially fine. Only three of four *Pine Apples* were shown, Mr. McIntyre being first both for *Queens* and *Smooth Cayenne*, also for any other sort. *Peaches* were finely shown, the first-prize twelve of *Walburton Admirable* from Mr. Smith, Brentham Park, Stirling, being particularly fine.

In the several plant classes some fine specimens were staged. The six stove or greenhouse plants, three stove or greenhouse plants, and three *Heaths* from Mr. Paterson, Millbank; the foliage plants, *Palms*, Ferns, and table of plants from Mr. Hammond; the *Fuchsias* from Mr. Walker, Rosehall, were all particularly good. With the exception of *Dahlias* from Messrs. Downie & Laird, *Hollyhocks* from Mr. Forbes, Hawick, and *Quilled Asters* from Mr. Taylor, Inveresk, this section was poorly represented. In the vegetable section the chief

interest was in the collections of Potatoes, prizes being offered for eighteen and twelve dishes of twelve each. Mr. Reid, Mid-Sanquhar, Ayrshire, was fairly first for both collections, though a considerable amount of dissatisfaction was expressed concerning other awards. There were twelve entries for a collection of twelve sorts of vegetables, Mr. Brown being first with a fine collection. The entries for dishes of *Onions*, *Cauliflowers*, *Leeks*, &c., were numerous, and the quality generally good.

MILDEW.

THIS destructive pest which affects Vines is much dreaded by cultivators, and its work of destruction is quick and complete if allowed to go unchecked for a very short time. It is not surprising that its appearance in a vinery is startling to those in charge, and how to check its ravages without injury to the crop of fruit is almost bewildering. The opinions as to the cause of the development and the best mode of disposing of it with the least damage to the crop are numerous; but so far I have not seen any very satisfactory suggestion on the subject, nor directly pointing to what I believe to be the real cause or causes. The supposed cause is a close stagnant atmosphere, which is considered favourable to the growth of fungi, and the present remedy is sulphur and a warm dry atmosphere. The sulphur is first applied to the pipes, and these heated until the atmosphere of the house is charged with the fumes, and if this does not destroy the mildew sulphur is applied in many ways; for instance, syringing the Vines with it mixed with water, and dusting both the leaves and the bunches, but this quite spoils the appearance of the Grapes. I do not doubt that sulphur will quickly turn it black and for the time being destroy it. It is really necessary before trying to check the disease, if I am justified in so calling it, to ascertain if possible the cause or causes which have been the means of bringing it into existence. What would be the good of sulphur applied in various ways, or the atmosphere kept dry and warm, if dryness of the soil at the roots was the cause of its existence? and I am thoroughly convinced that this is one of the chief causes of mildew. It is more prevalent during hot dry summers, especially when Vines have abundance of drainage, and in a light sandy soil more so than when the soil is of a heavier texture. When the disease appears under these conditions the drier the border and atmosphere are kept the faster the mildew spreads. When first noticed the border should be carefully examined, and if it is dry it should have a thorough supply of water. No sulphur will then be needed—the water is all that is required to check it. In a vinery here early in the season of 1879 the end Vine in an inside border was attacked by mildew. I examined the border and found it satisfactory, except the end, which to my surprise was very dry. A good supply of water was at once given, but instead of soaking into the border it passed to the end wall and through the bricks. Means were at once taken to prevent this; the border was well watered, and the mildew disappeared. Again, a sudden check to Vines by opening the house by ventilating too extensively or by discontinuing the fire heat impedes the progress of the Vines and predisposes them to disease. Watering in this case would be useless, and only add to the ravages of the pest. A warmer atmosphere would require to be maintained, and under these conditions sulphur placed upon the pipes would prove beneficial.

From careful observations for some time past I am convinced that mildew can be produced by cultivators, and that it can be also prevented by them. It would be useless to argue that mildew is only caused by the two conditions mentioned, for any cause which will check the Vine or induce a diseased condition of the tissues will give rise to mildew. On this point I shall at a future time point out two striking examples that have come directly under my notice to further prove that many causes, some of them perhaps at present unthought of, will cause mildew, and that its thorough eradication is impossible without the adoption of the severest measures.

Whether the mildew that attacks the Rose and the Peach is identical with that which infests Vines I am unable to say, but this I know, that they can be produced by similar causes. Roses are much subject to it, yet it is surprising in spite of this, if due precaution is taken and the minute details of forcing carefully and practically carried out, it can to a large extent be prevented. Dryness is also favourable to the development of mildew on the Rose. Cold draughts admitted to the tender foliage in the early season soon cause it, and perhaps nothing is more striking than when forcing is attempted and the plants have not had their proper season of rest. They start into a puny growth and are overwhelmed by this disease. Hard forcing also soon gives rise to it. But if these are guarded against, very little mildew will trouble cultivators when forcing Roses, especially if the soft-soap system is carried out, which has been fully detailed in the Journal.

Peaches under some systems of cultivation are much subject to mildew, and Royal George is specially credited with being liable to it: so far I have never seen it upon that variety. It would be difficult to point out under what different conditions it is caused to develop upon the Peach than upon the Vine and the Rose. Similar causes appear to me to induce the disease in nearly all instances.—W. BARDNEY.

TOMATO THE CONQUEROR.

I HAVE to thank "SINGLE-HANDED" for kindly pointing out a mistake inadvertently made by me, when I stated (page 180) that the Conqueror Tomato was "commoner" than the Trophy. What I meant to imply was that the former is more easily grown, being a free setter, and might with advantage be employed to impregnate the latter, which sets badly in heat. "SINGLE-HANDED" seems very confident that I have grown the wrong variety. Possibly I have, and it is equally possible he may have the wrong variety; or do the Messrs. Bliss & Sons of New York supply a favoured few only, and not the trade generally? My seed packet bears the impress of Veitch & Sons, a firm noted for the genuineness of the strains of vegetable and other seeds which they distribute, and I am quite certain that my plants were obtained from that packet of seed, as the whole of them have been quite distinct from any other variety grown here during the season. The colour of the fruit is a rich cornelian red, resembling Acme, but rather deeper than Vick's Criterion, and the fruit being corrugated is quite distinct from both. The Messrs. Sutton and Sons, another very reliable firm, give the Conqueror prominence in their "Amateur's Guide," and if their figure of it is truthful, corrugated the variety undoubtedly is. Will "SINGLE-HANDED" kindly send me a fair sample of fruit of his presumably true stock through the Editors or otherwise? as I must confess that I am somewhat sceptical with regard to its being "no more corrugated than an egg," in this respect differing, according to his opinion, from every variety mentioned in the list I gave on the page above quoted. I thought some of the smaller varieties were nearly perfect in that respect. Others no doubt have grown the Conqueror, what is their experience with it?—W. IGGULDEN.

[Mr. Iggulden has sent us fine fruits of the Conqueror which are slightly corrugated, examples of Vick's Criterion very faintly corrugated, with several fruits of the following small varieties—Nesbit's Victoria, oval; Dickson's Queen of the Tomatoes, pear-shaped; and Burghley Pet, round—all without speck, line, or wrinkle, therefore absolutely smooth.—EDS.]

VEGETATION IN SMOKY ATMOSPHERES.

It will not only be interesting but useful to dwellers in high altitudes surrounded with smoky atmospheres, of which there are so many in England, to know what kinds of trees, shrubs, and flowers are best suited to plant for shelter and for ornament in these situations. No better illustration of this can be found than at Dowlais House, Glamorganshire, which is in the centre of those great ironworks, the fame of which is known among all industrial communities in every part of the world.

Dowlais is 1000 feet above the sea level, and is surrounded by lofty chimneys giving forth clouds of sulphur-laden smoke, and fiery furnaces glaring with frightful fury—hundreds of them. One would fancy that no vegetation could exist in such a place; and although the plants are few that are to be found there, it may be instructive to know what they are.

It is sixty years or more since the plantation surrounding Dowlais House was planted as a shelter against the prevailing winds, and as an ornament to the place. Up to the present time the trees of which this is composed are not higher than the house itself, and still they are in perfect health. They are neither stunted nor deformed, but have the appearance of healthy dwarfs, doing their best to make themselves useful in the position where their lot is cast. The plantation consists of Elm, Ash, a few Black Poplar, and Hawthorn. The first three represent the healthy dwarfs, but the last seems quite at home, and attains a good average of that tree, being in proportion much larger than any of the others. From this we may learn the lesson that the Hawthorn is a tree well adapted for smoky atmospheres, and that the others that have been named, though not luxuriant, serve a purpose which, perhaps, no other trees would serve so well. The shrubs are few, Lilacs, struggling Rhododendrons, and *Lycium europæum* being all that were observed.

Of garden flowers the number which succeeds there is almost as limited as is that of the trees. Notwithstanding the persevering efforts of Mrs. Clark, who has bestowed more attention on her ungrateful flower beds than many do upon theirs who are

more highly favoured by soil and situation, she fails to rear those objects she so much loves. Her labours are not, however, wholly unrewarded, for in few places, or, indeed, in any place, have we seen such masses, and these so numerous, of the old Clove Carnation as at Dowlais House. There it luxuriates, and it is not unusual to see one plant covering a surface of nearly 3 feet in diameter. At the present time the garden is quite red with this fine old flower. Several species of Iris succeed well, and of these *I. pallida* and *I. foetidissima* are the most luxuriant. The London Pride knows no bounds to its vagrant habits, and rambles everywhere, blooming abundantly. Well may it be called London Pride, for it seems as if it would revel in the smoke of the great city. The Sea Pink (*Armeria maritima*) vies with the London Pride in its endeavour to win the smile of their generous patron, and in this it succeeds to perfection. The Gardener's Garter (*Elymus arenarius variegatus*) and the common Monkshood are dotted about here and there; but there are large masses of *Saxifraga ligulata* and *Veronica spicata* which seem to be perfectly at home. These with *Centaurea montana*, and here and there an *Auricula* struggling to hold its own, are the flowers that adorn the garden at Dowlais.

Although the garden at Dowlais House cannot boast of its outdoor riches, the deficiency is amply compensated for by the success of the indoor productions. There are not in all Glamorganshire better bunches or more highly flavoured fruit of Muscat of Alexandria Grapes than are to be found there, and these are quite rivalled by the well-developed Black Hamburgs. Pines are grown in large quantities, and in a style which calls for admiration. It would have taxed the strength of many a more pretentious establishment to have produced a clothes basketful of such Pines as we saw Mr. Boyce the head gardener and one of his men staggering under towards the room where Mr. and Mrs. Clark entertained the President and members of the British Association to a sumptuous luncheon, when they came by special invitation to see these ironworks. The collections of stove and greenhouse plants are varied and good, and the success with which they are cultivated is great when the untoward circumstances under which they are grown are taken into consideration.

SOUTH SHIELDS AND WESTOE FLORAL SOCIETY.

THIS old-established Society held its thirty-seventh Exhibition in the Cricket Grounds at Westoe on the 10th and 11th inst. The prize schedule was very liberal, and a most successful show was the result. The Society offered £10 for first for six stove and greenhouse plants in bloom, and five other prizes besides. This brought out eight competitors, many of the plants being in excellent condition, and fresh for the lateness of the season. The Show was held in a very large oblong spacious marquee. The flowering, foliage, and Ferns were placed on the centre stage slightly raised.

Messrs. John Thompson & Sons, nurserymen, Newcastle, were first for the six plants in the open class with a large *Stephanotis* very fresh, a good *Erica Fairriana*, *Bougainvillea glabra* well coloured, *Dipladenia amabilis*, *Lapageria rosea*; Mr. Battensby, Hagg Hill, being second, staging good plants of *Ericas Eweriana* and *Marnockiana*, the latter excellent. Messrs. Gardner, Dunston, and Mr. Morton, North Shields, were awarded equal thirds, the former possessing a fine plant of *Vallota purpurea* with over thirty spikes of flowers. For three stove or greenhouse plants in bloom J. C. Stevenson, Esq., M.P., Westoe (Mr. Smailes), was first, his best plants being *Allamanda Wardleana* very fresh, and *Erica Marnockiana*. Joseph Eltringham, Esq., Westoe (Mr. Watson), was second, his best plant being a very fresh example of *Cassia corymbosa*. It is seldom this plant is seen in better condition than in the north. For three fine-foliage plants Mr. Thos. Wilson, Gateshead, was first, Mr. Smailes being first for three decorative plants. The show of *Coleuses* was excellent, filling up one-half of the tent, and were quite a speciality. Mr. Smailes was first for three. Cockscombs were excellent, Mr. Bampton, Sunderland, showing a dwarf variety over 16 inches across. Mr. Watson also showed three grand *Vallotas*, Mr. Watson and Mr. Allan taking the remaining positions. Zonal *Pelargoniums* and *Fuchsias* filled up portions of the Show, and were in good condition.

Florists' flowers were superior, the Dahlias, Hollyhocks, and Gladioli being considered the best that have been exhibited in the north this year; but nearly all were shown unnamed. This defect was strikingly apparent in nearly every other department. Messrs. John Thompson & Sons were first for twelve spikes of Gladioli, and also first for twelve Hollyhocks; the latter were truly excellent, being very large in size and fine in quality. Some of the flowers were over 5 inches across. For six and twelve Dahlias Messrs. Walker, Low Fell, and Smith, Gateshead, were the prize-takers, with some excellent flowers as regards size and quality.

Fruit was not numerous, but some average bunches of Grapes were shown, especially those shown by Mr. Smailes, who won for two black bunches with Black Alicante in superior condition;—Williamson, Esq., Whickham (Mr. Lawson), being second with two fine bunches of Black Hamburg, well finished, but not nearly the size of

Mr. Smailes'. The latter was also first for two bunches of Muscat of Alexandria, averaging 3 lbs., large in berry, and of a richer amber in colour. Mr. Lawson also showed some good Peaches. Vegetables were excellent. With the perseverance of the Treasurer (Mr. Easton), and Secretary (Mr. Dobby), this Show, already good, will no doubt improve annually.

Not for competition were a stand of Phlox Drummondii, containing some excellent flowers of a rich violet shade, by Thos. Binks, Esq., South Shields (gardener, Mr. Bone); Mr. John Hinde contributing a stand of dwarf Capsicums, finely coloured, and the foliage of a rich glaucous green.

FUNGI A RESULT, NOT A CAUSE OF DISEASE.

WHY should "S." entertain feelings of regret "that our opinions regarding the relation of fungi to diseases in plants are entirely at variance?" The earnest tone of his communication shows at any rate that we are at one in that respect, and if by discussion we can obtain a better light to aid us in our search after truth there can be nothing to regret. Both "S." and Mr. Harrison Weir invite me to support my views by something more than mere assertion; and gladly do I hasten to do so, for the subject is one of considerable importance, erroneous views of it undoubtedly leading to wrong and probably mischievous attempts to obtain a remedy.

Taking the Potato disease first as an example with which we are all unfortunately familiar, when are fungi perceptible in the Potato? Before the plague spot appears or afterwards? Invariably afterwards; and mark this, If the weather continues hot and dry after growth ceases in the tubers no plague spots appear, and consequently no fungus, but the haulm decays naturally and the crop is safe and sound. Observe further, that if upon growth ceasing in the tubers showers occur only for a day or two, plague spots promptly appear, and continue to spread to the serious hurt of the crop, no matter how hot and dry the weather may be afterwards; so that the disease may be seen spreading in weather the reverse of favourable to the growth of fungi, or, in other words, not affording the "particular temperature and moisture necessary" to its growth. Advocates of fungi as a cause of disease have no reason to complain of discourtesy or neglect in this particular instance, for the matter was fairly tried out at Chiswick, the Royal Horticultural Society allowing a leading advocate of the theory and well-known fungologist to apply his specific, termed "Salus," to a plot of Potatoes, without effect!

Peach blister occurs in spring, and only in spring. It attacks tender foliage and the epidermis of young branches that are exposed to the seathing influence of cold winds from the north-east that are then usually prevalent. Protect the young growth from the cold winds and no blister appears, and consequently no fungi. I have proved this year after year in a variety of ways, accounts of which have from time to time been published in the Journal. Observant men of established character and position in various parts of the country have likewise proved it, as, in fact, anybody possessing ordinary powers of observation may do. Let us not forget that the midsummer growth of Peach trees is equally tender, equally sensitive to blight in "leafy June," when a genial temperature and frequent showers—so favourable to the growth of fungi—prevails, and yet no fungi appears, simply because there are no cutting blasts to blister the foliage and produce a suitable medium for its spores to vegetate in.

If shanking of Grapes is caused by a fungus, how is it that I have Vines growing in the same border under precisely similar conditions, some of which have not a faulty berry and others have shanking more or less in every bunch? Experience enables me to assert that overcropping is the cause in some instances and debility in others. I hope to renew that portion of the border in which the Vines showing tokens of debility are growing, and if this is done thoroughly one may look forward very confidently to a thorough cure next year. The fact of the fungus only being found upon "the little pieces shanked" of otherwise fine bunches to my mind affords positive proof of it being a result of disease. If it were not so, what is to prevent the mycelium from spreading over the entire bunch?

Mr. Harrison Weir's denial of the existence of an analogy between plant and animal life is decidedly in opposition to the teachings of modern science. This may perhaps best be shown by a brief quotation or two from the teachings of a professor of vegetable physiology:—"We lop off the early shoots of our fruit trees in order to direct the nutriment into the flowering and fructifying parts, instead of allowing it to be spent in the growth of (to us) useless new tissue. The creeping roots of our Strawberries are religiously cut off for similar reasons; for in this case, as in some of that of the lower animals, propagation takes a two-fold shape—by flowering (as animals by eggs) and by means of a stoloniferous root (as such animals as compound corals and hydras by that process termed budding). Every plant, therefore, is as

distinct an individual as a coral animal, and is even better able to propagate new individuals. One does so by specialising certain parts of the tissue to form ova or eggs, the other to form seeds. The analogy may be carried further still. All animals are provided with a certain store of nutriment to assist in their growth until they can obtain sustenance for themselves. In the eggs of all living creatures the bulk contains three-fourths of such stored-up material, which is unconsciously and imperceptibly absorbed into the structure of the newly developed animal. Similarly as is seen in our beans, peas, acorns, &c., there is a supply of albumen and starch for the nourishment of the young seed germ until it can strike root into the ground on its own account, assimilate the soluble mineral matter it finds there, and deoxidise the atmosphere of its necessary aliment."

The subject is so seductive that one might fill many pages in refutation of Mr. Harrison Weir's singular assertion. Fruits and leaves absorb carbonic acid and give out oxygen by day; at night this chemical action is reversed. All the various substances now known to exist in the atmosphere are found alike in vegetable and animal bodies, and bear a direct relation to organic life; moreover, the atmosphere contains in an elementary form nearly all the substances found in vegetables, just as it does most of those found in animals.

Bernays' "Student's Chemistry" throws great light upon the intimate analogy in existence between plants and animals. Speaking of the diffusive power of gases he says:—"But for this law there could be no life. Vegetation must languish and die for want of a supply of carbonic acid, which by this provision is wonderfully and completely diffused throughout all the particles of air. The watery vapour, of no less importance, would not keep flexible the skins of animals and supply parched vegetation with rain and dew. In the process of respiration the minute cells of the lungs, in which the aëration of the blood takes place, would not be emptied at each exhalation of the heavy carbonic acid which they contain, but the operation would after a few minutes be suspended, and death inevitably ensue."

This last quotation will, I hope, carry conviction to every thoughtful mind that the same natural laws affect in a very similar manner animal and vegetable life, and tend to prove that very similar conditions are alike necessary for health. To enforce the lesson in more homely phraseology I may add that fresh air, wholesome food, and cleanliness are alike good for animals and vegetables, and the want of them causes sickness and debility in both.—EDWARD LUCKHURST.

HYBRID ODONTOGLOSSUMS.

I MIGHT have been a little more explicit in my remarks on the hybrid *Odontoglossum* in my descriptive notes of Lee Hall on page 192. The hybrid alluded to has not been raised by Mr. Glover, but I understand was found amongst some imported Orchids that were purchased; it proved to be quite distinct, and is supposed by good authorities to be a cross between *Odontoglossum luteo-purpureum* and *O. Lindleyanum*.—WM. BARDNEY.

CONCERNING "SINGLE-HANDED'S" inquiry about hybrid *Odontoglossums* on page 235, I believe he is correct in stating that we have no evidence as to a hybrid having been obtained between any two species of that genus in this country. But at the same time there are several forms that are reasonably regarded as "natural hybrids," from their being intermediate in character between other species. The best known of these probable hybrids are *Odontoglossum Humeanum* (*O. cordatum* and *O. Rossii*), *O. Murrellianum* (*O. Pescatorei* and *O. nevium*), and *O. Coradinei* (*O. triumphans* and *O. odoratum*). As regards *Cattleya Manglesii* Mr. F. W. Burbidge, in his work on the improvement of cultivated plants, states that *C. Mossiae* was the seed-bearing plant crossed with *C. Loddigesii*.—D.

THE POTATO DISEASE.

THE extract from the *Times* I put at the end of my last communication does not appear to have given general satisfaction, although I think the remarks are true in the main. One part of it is perhaps not altogether correct—i.e., that gardeners have been careless about their seed Potatoes. Some of them I know have been careful with those tubers selected for seed. I still adhere to my original statement, but in referring to the apathy of the growers, &c., my observation was a general one, and not intended to apply to any particular class. Having quoted from a leading article in the *Times* I will now refer to one in the *Daily News* of 23rd August last—"The agricultural returns lately published show that in Great Britain alone 550,931 acres have been planted with

Potatoes in the present year, and over a considerable portion of this vast area the disease has seriously affected the plant. To some extent this is the fault of the cultivators themselves. It is only by the large grower that the Potato has anything like scientific culture. In Ireland the great bulk of the crop is produced by small farmers, who sow every second year in the same ground, use the smallest tubers for seed, and take no precautions whatever against blight. The same may be said of the great mass of the smaller growers in England and Scotland. They go on with the same variety long after it has begun to degenerate, and make the worst part of one year's crop the seed for the next year, and probably bury the diseased haulm in the Potato field itself." The above remarks agree pretty well with mine, and the truth of them is borne out by the excellent crops obtained in Ireland this year, in consequence of the people having been supplied with a good sample of Scotch Champion, and as far as I can understand there will be double the produce they formerly obtained.

Your Lincolnshire correspondent has read my book, it appears. I am very pleased to hear he has a copy, but I wish he would read it more carefully, for he would then see that on page 66 Potatoes are only recommended to be planted 5 inches deep on light land, such as in the neighbourhood of the Cotswold Hills, and that on heavy land the reverse plan is recommended. With regard to the merits or demerits of the book it is not for me to speak. It has been reviewed in several of the leading journals, and well spoken of. It has been adopted by the Irish Government as the official reference book as to the disease, and I have received letters of approval from all parts of England, which ought to be enough to satisfy anyone.—THE WRITER OF "THE POTATO DISEASE AND HOW TO PREVENT IT."

A WEEK IN YORKSHIRE.—No. 2.

OAKWORTH HOUSE — THE WINTER GARDEN.

(Continued from page 241.)

IN my last notes on this extraordinary garden it was stated that Mr. Holden's mansion was situated within a very short distance from the public road that traverses the village. This road skirts what in a flat district might be termed a range of hills. It will render the position intelligible to say that the road runs east and west, and on the right hand side, travelling westward, the ground rises somewhat abruptly to a considerable altitude; on the left is the picturesque vale, in which Haworth is conspicuous with its new church and old spire. Oakworth House being immediately at the foot of the rising ground mentioned, and the winter garden being in the rear of the mansion, and the other glass structures again in the rear of the winter garden, it follows that to obtain the necessary levels a considerable extent of quarrying was requisite, for the hill is composed of a dense mass of Yorkshire stone. Had the ground whereon the horticultural edifices are erected been uniformly level the work done would have been of great magnitude; but when we consider that the entire area of the winter garden had to be excavated out of the solid rock on one side or end to the depth of, apparently, from 15 to 20 feet, the undertaking appears to have been little short of stupendous—such an one that only a man who had spent a life in facing difficulties and conquering them could have entered on and carried it out so completely, thoroughly and successfully.

To commence, then, with the erection of this large winter garden, which, as before mentioned, covers an area of nearly half an acre, the site had to be quarried to the extent indicated, the stone being in part utilised in the formation of the huge rockeries that have been previously alluded to. The building is square in form, or nearly so—a side entrance from the front being through arches of rocks between the mansion and chapel; but the principal entrance is directly through the mansion, which is singularly complete, elaborate in its ornamentation, yet chaste and rich.

Considering that the planting and furnishing of this winter garden was only commenced last autumn, its appearance cannot fail to astonish the visitor on obtaining his first glance of the interior. Five large beds occupy the central portion of the building, and extend almost its entire length. On the margins of these beds the hot-water pipes are arranged, enclosed in ornamental gratings, coped with an iron cornice, the "walls" being about 2 feet high. At intervals along the top are vases for groups of plants alternating with pillars or pedestals for individual specimens; and between these, on the top of the walls or curbs, ornamental-foliaged and flowering plants in pots are arranged. The vases are furnished with Yuccas, Ferns, a few flowering plants, and *Tradescantia zebrina*; but ordinary flowering plants, such as *Pelargoniums*, &c., are necessarily transient so far from the glass, especially in summer, and more of such plants with persistent and ornamental foliage will probably be found more satisfying. For

the pedestals such plants as variegated Yuccas, Aloes, Euryas, *Dasyliions*, and others of the same nature would have a fine effect, and would improve yearly in value and beauty. Such plants are already represented, and in due time the number of them will be probably increased. Planted out in the beds are the permanent specimens—Palms, Cordylines, Cycadaceous plants, Tree Ferns, Camellias, Oranges, Sikkim Rhododendrons, variegated Euryas and Yuccas, *Theophrastas*, *Araucarias*, *Acacias*, *Grevilleas*, &c., with *Eucalyptus globulus* planted near the pillars, to which the trees are trained, and which are making rapid and healthy growth. The girders of the roof will eventually be covered with climbers, several of which have been planted, and some are making good progress. A structure of this kind affords suitable positions for a great variety of climbing pillar plants, of which the following are examples:—Of the *Tacsonias*, such as *T. exoniensis*, *T. Van-Volxemi*, and *T. mollissima* are all suitable; and of the *Passifloras*, *Comte Nesselrode*, *Impératrice Eugénie*, and *cærulea racemosa* are among the most useful. On the cool moist part of such a building *Lapagerias* would thrive, and in the lighter positions *Clematises*, *Bignonias*, *Mandevilla suaveolens*, and the fragrant *Pergularia odoratissima*, with *Habrothamnuses*; *Acacias dealbata*, *oleifolia elegans*, and others; *Plumbagos*, *Rhynchospermums*, *Jasminums*, *Bomareas*, &c. Some of these are already represented, and in due time such plants will have an elegant appearance.

At the end opposite the mansion the effect is strikingly picturesque, original, and unique. The excavations were not carried to the extreme end of the building, but were stopped some 20 feet short of it, leaving the natural face of the rocks about as bold and rugged as the mind can imagine. With good taste in designing and careful execution of the work, a most imposing effect has been produced here. A chasm has been made to form the bed of a cascade, down which the water rushes, not in a smooth stream as if from a trough, but in a series of jumps and bounds, breaking it up like a mountain torrent as it dashes into the pool below. On either side of this cascade are large caverns with dark and twisted passages—a cool hermit-like retreat, in striking contrast to the more artistic scene of the ornate building and its diversified vegetation. In suitable positions at the front of this precipice, and on ledges on its rugged face, are large plants growing freely—*Phormium tenax variegatum*, *Latanias*, Tree and other Ferns, Yuccas, and many others that it is not necessary to enumerate. This boldly indented and broken face of rocks and vegetation, which extends across the building, may possibly be about 15 feet high, and on the top is what may be termed a balcony garden of considerable extent, and certainly original in design. This is reached by two twisting flights of rude stone steps, appearing as if hewn out of the solid rock—one flight on each side of the building; but we ascend to the balcony by another and a much longer route.

It must be said now that the pleasure ground side of the winter garden is of glass from the roof almost to the ground, the other side being a wall of rocks. A great deal of this is artificial, but so admirably executed as to appear most natural. At the base are rough boulders that lie in the bed of a tortuous stream, which meanders along under the shade of Ferns. In this wall of rock large irregularly-shaped mirrors are embrasured at intervals, by which the entire garden is reflected, this apparently doubling its size and giving a tropical forest-like appearance to the scene. At the mansion end of the building we step across the stream, and a narrow path leads to a door in the side of the building. Near this door is apparently the weather-worn trunk of a huge Elm—an exact resemblance of a monarch of the forest, with its big arms sawn off at short distances from the trunk, the hollow extremities of which form receptacles for plants—*Aspidistra lurida variegata*, Aloes, and on the summit a fine specimen with large gracefully drooping fronds of *Encephalartos ampliatus*. Nearing the tree we find it not so old as it at first sight appeared, and instead of its having weathered the storms of centuries it had been raised in a few months by skilful French artists, for its substance is cement. Passing partly round the gigantic trunk we find a fissure, just large enough to admit a man whose curiosity naturally impels him to enter. Inside he sees a sort of corkscrew arrangement of rough stones; these he ventures to climb, to look out of the top of the remarkable cylinder, but reaching the summit he is surprised to find that he is by no means at the end of his journey. He finds himself at the end of a rocky parapet, his head nearly touching the roof; and on he goes, now stepping across an apparent fissure, now on a boulder. He follows his irregular yet perfectly safe track, and looking down admiringly on the scene below and with feelings of astonishment at his position above he eventually finds himself in the balcony garden before mentioned at the opposite end of the building. This elevated portion is still a considerable distance from the roof, and there is ample height

for Palms, Tree Ferns, and other ornamental plants that attain a considerable size. The balcony is rendered extremely attractive by the tasteful association of rockwork, water, knolls, borders, and curving walks. Near the margin of the precipice is on one side a splendid specimen of *Latania borbonica*, and on the other a fine *Cycas circinalis*. These are what may be termed the two corner plants. They are planted on *Selaginella*-covered mounds, and have a fine effect, both as seen from above and below. Amongst the rocks are individual plants of *Yuccas*, *Aloes*, *Ferns*, *Camellias*, &c., and in the pools are *Water Lilies* margined with *Ferns*. It is from here that the water is "turned on" and the cascades burst out, the water rushing down its rocky bed into the pool below. And not here alone does the water issue, but from various points all along the side of the building, the parapet of which we have just traversed, it splashes, and dashes, and foams, pursuing its headlong course in the stream below, and flows into culverts at the opposite end of the building. When the full water force is on and the supply is unlimited the roar of the several cascades is half deafening, and on a hot day highly refreshing. When the face of the rocks becomes more clothed with vegetation (some of the choice variegated and other *Ivies* would thrive and look well here) the effect of this splendid house will be grand; it is fine now, and it is astonishing how much has been done in the way of planting and furnishing since the work commenced.

As was mentioned last week, the floor of the winter garden is of mosaic work wrought in chaste designs and executed in the most skilful manner. Considering the extent and artistic character of the work it has no equal that I am aware of in any other structure of the kind in the kingdom. Few of the pieces of marble employed appear to exceed half an inch square, and when it is remembered there are probably a thousand square yards of this mosaic flooring some idea of the magnitude of the work may be formed.

In connection with this remarkable structure is a billiard room and Turkish baths, all furnished in the most complete manner. Preparations are being made for illuminating this winter garden with the electric light, which, according to Dr. Siemens' experiments, has such a striking and beneficial effect on vegetation. Mr. Holden has certainly a fine field for testing it; and as we are indebted to him for so much light—the lucifer match—his enterprise may yet place us under further obligations with the highest and most perfect of all modes of artificial illumination in connection with the growth of plants and trees.

Sufficient has been said to show that Mr. Holden's winter garden is no ordinary structure; it is in fact extraordinary both in conception and execution, and owner, architect, and gardener are alike to be congratulated on its condition. It will improve with years, and all will share in the hope that Mr. Holden may long enjoy the splendid structure that he has at such great cost and labour succeeded in bringing to its present very advanced state of completion.—A RAMBLER.



THE Committee of the MAIDSTONE CHRYSANTHEMUM AND FRUIT SOCIETY, which is under distinguished patronage, have issued a liberal schedule. We observe that a class is provided open to all England for thirty-six incurved blooms, distinct, of large-flowered *Chrysanthemums*, the first prize being a silver cup value £10 10s., the remaining prizes being £4 and £2 respectively. There is also a class for eighteen plates of Apples, distinct varieties, open to all comers, the first prize being a silver cup value £5 5s., offered by H. A. Brassey, Esq., M.P.; the second and third prizes of £2 2s. and £1 1s. being offered by Roger Leigh, Esq., M.P. Lord Holmesdale also offers a silver cup, value £5, in the county section for twelve specimens of large-flowering *Chrysanthemums*. Sir E. Filmer, Bart., M.P., Sir John Lubbock, Bart., M.P., and Sir Sydney Waterlow, M.P., are also among the donors in the prize list. A Society thus well supported, and in a fine district for fruit culture and good gardens, ought to produce a very large and fine exhibition.

— A PRACTICAL and successful cultivator writes as follows

relative to WATERING, TRENCHING, AND MULCHING:—"We have to thank a system of deep trenching for carrying us well through the late drought, so that Peas, French Beans, Vegetable Marrows, Lettuces, Endive, and young Cabbages, are now plentiful. Slight mulchings of half-decayed manure placed between the crops were of the greatest value. Asters, Pansies, Carnations, Marigolds, &c., have been without water. Dahlias we have watered to keep the plants on flowering and to increase the size of tubers for stock purposes. Gladioli have been extra fine with us this year; these have had one thorough good drenching of water in order to swell up the corms for next year's blooming. Pentstemons have also had to be watered in order to produce a sufficient number of cuttings, the flowering having exhausted some of the plants so much that no cuttings were to be had."

— THE annual autumn Exhibition of the BRIXTON, STREATHAM, AND CLAPHAM HORTICULTURAL SOCIETY will be held in the Lecture Hall, Streatham, on November 11th and 12th. The exhibitions of this Society have gone on steadily improving since the Society was established. The district appears to include many good cultivators, and in every section the exhibits have been highly creditable, specimen *Chrysanthemums* having been generally exceptionally fine. Good prizes are offered for them this year, also for cut blooms, and several classes are devoted to stove and greenhouse plants, fruits, and vegetables. The Society appears to be admirably managed, and unquestionably possesses a competent Secretary in Mr. Hall. The coming Show will no doubt rank amongst the best of suburban exhibitions.

— A CORRESPONDENT writing from the neighbourhood of Wimbledon says:—"I often wonder that the HARDY STATICES are not more frequently grown in gardens, as they are certainly very attractive, and just now are with me in fine condition. One species that I especially admire is *Statice tatarica*, of dwarf habit, bearing an immense inflorescence of small flowers with silvery white calyxes and rosy-coloured corollas. *S. densiflora* is another pretty species, compact in habit, with numerous purplish blue flowers. *S. Limonium*, the well-known British species, is not less pleasing, the foliage being very large, of a deep shining green colour, and the large spreading inflorescence is crowded with very small pale purple flowers."

— AT the BRIGHTON HORTICULTURAL EXHIBITION an incident occurred showing how careful it is necessary for intending competitors to be when giving notice of entry. The Corporation cup, offered for a collection of fine-foliage plants, was awarded for the specimens from Handcross Park, Crawley, Sussex, but by mistake the name of Mr. Rann's foreman was printed on the prize card and engraved on the cup. He had, it appears, conducted the correspondence in reference to exhibiting, and thence the error arose. At the same Exhibition the Directors of the London, Brighton, and South Coast Railway most liberally provided free carriage for all exhibits from any station on their line to Brighton and back again.

— RELATIVE TO PLANTING SHRUBS AND TREES NEAR THE SEA, Mr. B. Cowan writes as follows:—"I should feel glad if any of the readers of the Journal who have lived near the sea would give me their advice as to what trees or shrubs endure the strong saline air, and are also not affected by the manufacture of chemicals, such as alkalis, muriatic acid gases, &c. When the wind is in the east we get the breezes direct from the sea, and when in the west the air is quite thick, and at times strongly impregnated with the smell of alkalis. I am extremely anxious to plant, but am at a loss to know what is best to do. Nothing seems to stand here but Elders; I therefore feel inclined to plant belts of them for shelter. Can it be explained why Elders withstand the effect of chemicals? Is it through any peculiar chemical constituent they contain?"

— AN extremely ornamental example of *EUONYMUS LATIFOLIUS* now attracts attention in the Cambridge Botanic Garden. It was Loudon's favourite, who thought it finer than all other species. This tree shows he was quite correct. It has very large pendulous fruits in profusion, and the effect is enhanced by the orange-coloured seeds of the bursting capsules. The leaves are large, and just now are assuming the red autumn tint for which alone the tree is valuable.

— A CORRESPONDENT, Rev. A. Fitch, will feel greatly obliged if any of our readers can give the years in which the following varieties of Potatoes were introduced:—Fox's Seedling, Rivers's Ashleaf, Myatt's Ashleaf, and the Lapstone.

— AN old but seldom seen plant—viz., *ISOTOMA AXILLARIS*, an ally of the Lobelias, was recently flowering in the grounds devoted to herbaceous plants at Kew. It is dwarf, rarely exceeding a foot in height. The leaves are narrow, irregularly and deeply cut down the margin, and dark green in colour. The flowers are borne singly in the axils of the leaves on slender peduncles several inches long; the corollas are long and tubular, with a pale lilac blue limb of five spreading divisions. It is easily grown, and the delicate tint of the flowers is very distinct and pleasing.

— A CORRESPONDENT informs us that AN EXHIBITION OF CUT FLOWERS was held at Maidstone on the 8th inst. by the Gardeners' Mutual Improvement Society of that town. Asters and Phloxes were especially well shown, but Dahlias were not very abundant. The chief prizetakers in the classes for the two former were Mrs. Brook, Manor House (Mr. J. Godden); Miss Farmer, Leeds (Mr. R. Brown); Lady Lennox, Mereworth (Mr. Jeffery); Messrs. Hollingsworth (Mr. H. Exall); F. Pine, Esq. (Mr. Hepworth); and J. Moncton, Esq. (Mr. J. Mills). Grapes were shown by J. Whatman, Esq. (Mr. McLean), and by Messrs. Exell and Morris. The arrangements were conducted by Messrs. Frost and Harrison.

— MR. EWART of Apethorpe Gardens, Wansford, Northamptonshire, informs us that in April last he planted 6½ lbs. of SUTTON'S MAGNUM BONUM POTATO, and when the crop was dug on the 9th inst. the produce was found to weigh 231 lbs., all sound table Potatoes.

— AN observant cultivator speaks in the following eulogistic strain concerning the SCOTCH CHAMPION POTATO:—"A friend of mine has at least 500 acres of this variety, and not a sign of disease among the whole of it. I, too, have grown the 'Champion' to some extent, but not so largely as above noted, and I am of the opinion that as a disease-resister and bountiful cropper it is unrivalled. If anyone should ask me how we are to avoid the Potato disease I would answer—Grow the Champion, even though it cannot be lifted until November."

— A VERY common error in WINDOW GARDENING is that of attempting too much. Too many plants are crowded into the little space at command, so that it is impossible to give each the air and light it should have. Again, plants of too diverse character are brought together. It is no uncommon thing to see tropical plants, and plants from the temperate zone, if not even alpine plants, all crowded into the same window and subjected to the same temperature and treatment. Better far to have one healthy well-grown plant that will yield its flowers in perfection than a dozen sickly, feeble, wretched plants, that have no beauty either of leaf or blossom.

— REPORTS about the serious damage done by last winter's frosts to the VINES AND FRUIT TREES IN GERMANY, the extent of which is now being realised, state that in the district around Fulda over fifty-five thousand fruit trees have been killed, being about one-fourth of all in the district. The Vines seem to have

fared better. The stock has suffered in many cases, while the root is still vigorous. But the injury even to the Vines will be felt for some years. The Roses also have suffered greatly. The Tea Rose has almost disappeared throughout the Rhine valley, and even the common Dog Rose has been quite destroyed in many places. The deep valleys suffered most, while elevated slopes and open places escaped with minor losses.

— WE learn that MR. MATTHEWS of the Royal Pottery, Weston-super-Mare, was awarded a large silver medal for a display of terra cotta vases and garden pottery at the Wirral and Birkenhead Agricultural Society's annual Show held at Birkenhead on the 8th and 9th inst.

— AN American contemporary refers as follows to Mr. JOHN H. PARNELL'S (brother of Mr. Parnell, M.P.) PEACH ORCHARD IN ALABAMA. This orchard is a field of 250 acres, containing about eighty thousand trees. In a good season Mr. Parnell sells one hundred thousand boxes, or a million and a half pounds weight, of Peaches. Our contemporary says that Parnell's Peaches are renowned throughout the States, and that his shipments reach the most distant cities of the American Continent.

EARLY HARVEST APPLE.

I CAN fully confirm, if confirmation were needed, the recommendation in your correspondents' column of last week, that this Apple should be grown in all collections. It is there stated to be adapted for dwarf and espalier training when grown on the Paradise stock. It is also, it may be added, equally well adapted for standards on the Crab stock, on which it grows healthily and freely in ordinary good soil. About fifteen years ago I planted several varieties of Apples, and none has given more satisfaction than Early Harvest. It is one of the finest trees of all now, and bears good fruit freely. Although not particularly handsome in appearance, the fruit is often above medium size, juicy and refreshing, and is much esteemed in hot weather. I was not previously aware that this Apple was of American origin; that, however, is no drawback, for it is now quite naturalised, and succeeds as well as any other early variety that I am acquainted with in English gardens. Those who want a few pecks or bushels of juicy and palatable table Apples during harvest cannot do better than plant trees of this useful and too little known variety.—A. M. C.

ROYAL HORTICULTURAL SOCIETY.

SEPTEMBER 14TH.

DAHLIAS constituted the most imposing portion of the exhibits at this meeting, the collection from Mr. H. Cannell being especially fine. Messrs. Keynes and Rawlings also contributed largely. Mr. J. Roberts' group of dwarf Scabious attracted much attention. The ornamental Oaks from Messrs. C. Lee & Son, and the vegetables from Messrs. Stuart, Mein, & Co., were the other chief features of the meeting.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. The fruits and vegetables submitted to the Committee were not very numerous. Mr. W. Crump, The Gardens, Blenheim, was awarded a first-class certificate for a seedling red-fleshed Melon named Blenheim Orange, a handsome fruit of moderate size, globular in form, finely netted, with a great depth of flesh and of good flavour. The seeds were stated to have been taken from a fruit that gained first prize in a competition of over thirty fruits at the Royal Horticultural Society's summer Show, June 8th, 1880. The form originated by crossing Read's Scarlet-flesh with Hero of Bath. Mr. Crump finds it very prolific and quick in ripening. Mr. Roberts, The Gardens, Gunnersbury Park, sent a fruit of a seedling Melon that had been grown in a cold frame. It was of good size and fair flavour. Mr. Harrison Weir, Weirleigh, Brenchley, Kent, sent samples of Diamond Plum to show the effects of stock on scion; the fruits gathered from the variety on the Sloe stock being much smaller than those from a plant on the Mussel stock, though there was no difference in flavour. Mr. George Bunyard, Maidstone, sent a new Pear named Dr. Jules Guyot, a very handsome Pear, but not quite ripe. Herr Ernest Benary's Tomatoes, Turk's Turban and White Apple, were shown from Chiswick, both in good condition. From the Society's garden came also a dish of Malakovna Apples, a Russian variety of moderate size and rich crimson colour. Samples of Red Flat Egyptian Turnip Beet and Guernsey Half Long Parsnip, a variety sent to Chiswick by MM. Vilmorin, Andrieux, et Cie., Paris, were also exhibited. J. Southgate, Esq., Selborne, Streatham (gardener, Mr. J. Salter), sent eight fine fruits of a Cucumber named Selborne Rival, a cross between Marquis of Lorne and Tender and True. It was characterised by the Com-

mittee as "a very handsome and promising Cucumber, but deficient in flavour, which may be owing to the lateness of the season." They requested that fruits should be submitted again in the full season. Mr. John Edwards, The Gardens, Acton Burnell, Shrewsbury, sent examples of Victoria Kidney Potato, which is to be sent to Chiswick for trial. Messrs. Stuart, Mein, & Allen, Kelso, N.B., staged a large collection of vegetables, including eighteen dishes of Potatoes, nine of Onions, four of Turnips, and one of Peas, besides Cauliflowers, Cabbages, Leeks, Beet, Celery, and Vegetable Marrows. A cultural commendation was awarded.

FLORAL COMMITTEE.—James McIntosh, Esq., in the chair. As already indicated the chief display consisted of Dahlias, which were in extremely fine condition. Other plants were moderately well shown, but not in great numbers. Mr. H. Cannell, Swanley, Kent, contributed a large and representative collection of Dahlias. Show, Fancy, Bouquet, and single varieties were shown in admirable condition, many excellent forms being included. Some of the best Bouquet varieties were Perfection of Liliputians, very dark maroon; Nabob, purplish, neatly quilled; National, good scarlet; John Sandy, orange chrome tint; Sensation, pale yellow; Snowflake, white; Northern Light, rich scarlet; Lady Blanche, good white; Little Model, purplish crimson shaded; and Rigolette, dark maroon. In the Fancy varieties the following were noteworthy:—Regularity, pink with maroon streaks; Grand Duchess, chrome yellow, crimson streaks; Chang, pale primrose, fine maroon streaks; R. Burns, bright purple, darker streaks; and Florence Stark, white, crimson streaked. Among the Show varieties were H. Turner, handsome white; G. Smith, deep crimson; Victory, deep maroon; J. Keynes, rich yellow; H. Bond, fine bright purple; J. Bennett, good scarlet; and Amy Robsart, purplish puce, all fine varieties. Dahlia Juarezii was also very bright and good. Cultural commendations were awarded for these collections. Mr. Cannell also sent a plant of Iresine Wallisi of continental origin, somewhat in the way of Iresine Herbstii in the foliage and habit, but with the colour of I. Lindeni; it was very dwarf and compact. Messrs. James Carter & Co. exhibited several new Coleuses that were not, however, deemed sufficiently distinct to merit an award.

Mr. J. Roberts, The Gardens, Gunnersbury Park, Acton, exhibited a group of dwarf Scabious in pots to show what useful plants they are for decorative purposes in autumn. They were singly in 24-size pots, and averaged about 18 inches in height, bearing a number of brightly coloured flower heads. Crimson, maroon, pink, white, and purple were represented. A cultural commendation was awarded. Mr. G. Fry, Further Green, Lewisham, sent a plant of the peculiar *Rubus australis*, or Australian Bramble, with trifoliate leaves, very slender petiole-like leaflets covered with small white spines. It bears in Australia the name of "Lawyers."

Messrs. Charles Lee & Son, Hammersmith, exhibited a fine collection of ornamental Oaks, including about sixty forms. Some of the most distinct and attractive were the following:—*Quercus cerris* elegantissima, prettily variegated; *Q. concordea*, pale yellow foliage; *Q. argentea picta*, pale green spotted and streaked with white; *Q. atropurpurea*, fine purple tint; *Q. pectinata*, neatly divided leaves; and *Q. filicifolia*, similar. Some variegated Elms and Chestnuts were also exhibited, all good. A vote of thanks was accorded for the group, and for a box of Tuberous Begonia blooms gathered from plants grown out of doors; they were especially noteworthy for their bright colours.

Mr. W. Iggulden, The Gardens, Orsett Hall, Romford, exhibited plants of an improved form of *Begonia semperflorens*, named *grandiflora*. It chiefly differed from the type in the larger size of the pure white flowers, the good trusses, and the freedom with which they are produced. It is likely to be very useful for cutting purposes, but the Committee desired to see it with the species and a variety of Messrs. Suttons'. Messrs. Keynes & Co., Salisbury, sent about nine dozen fine Dahlia blooms, both Show and Fancy varieties being well represented. Several good new varieties were certificated. Messrs. Rawlings, Bros., florists, Old Church, Romford, also exhibited several handsome seedling Dahlias; and Mr. G. P. Harris, Orpington, Kent, staged blooms of a beautiful yellow Show Dahlia named President, fairly good in form and of a most delicate pale yellow tint. Mr. Charles Noble, Bagshot, sent flowers of Rose Queen of the Bedders, of which it is stated flowers may be cut during five months of the year in the open ground. The Hon. and Rev. J. T. Boscawen, Tregothnan, Cornwall, sent flowers of *Bougainvillea glabra* gathered from plants growing outside unprotected. Sir H. W. Parker, Stawell House, Richmond (Mr. Howell), exhibited flowers of a very good variety of *Lapageria rosea*. Mr. H. Eckford, The Gardens, Sandywell Park, Cheltenham, was accorded a vote of thanks for a collection of seedling Coleuses, some of which were excellently coloured. From the Society's garden came fruits of the pretty *Fragaria indica*, so attractive either grown in pots or on the rockery, and flowers of the rich crimson *Canna iridiflora hybrida*.

First-class certificates were awarded for the following plants and flowers:—

Coleus Mrs. W. M. Shirreff (King).—A handsome and effective variety of good compact habit, with neat leaves, having a centre of rich bright crimson surrounded by a band of maroon, and with an evenly crenated green margin. Undoubtedly one of the best that has been exhibited.

Dahlia Walter N. Williams (Keynes).—This was certificated as a "decorative flower." It was chiefly notable for the extremely bright

scarlet colour and its great size, but was not of sufficiently good form to merit a certificate as a show variety.

Dahlia Joseph Green (Keynes).—A very good scarlet flower, described on page 254 in the report of the Brighton Show.

Dahlia Mr. Harris (Rawlings).—Excellent flower, good depth, rather hollow in centre but very regular in outline; colour deep rich crimson maroon.

Dahlia Frank Rawlings (Rawlings).—A handsome flower, very symmetrical, rather low in the centre, rich purple colour, very good depth.

Croton B. Franck Selliere (Chantrier, frères, France).—An extremely distinct variety, with leaves from a foot to 15 inches in length, 3 or 4 inches broad, very distinctly veined and variegated with yellowish white. It will probably form a fine exhibition plant.

THE SCOTCH CHAMPION POTATO.

MR. LUCKHURST seems to entertain anything but a favourable opinion of this Potato. I really cannot think he has the right variety, for with us last year its cropping, its keeping, and its cooking qualities were all that could be desired. The tubers when cooked were beautifully white and very mealy, with a good flavour—so much so, that I never had one complaint from the time we started to use them before Christmas last year until July this year. At that time being so good I had orders from London to send more of them, as those purchased there were not eatable. Surely this evidence is worth something as to the merits of this useful variety. True, it has one great drawback in its deep eye, but its other good qualities are so overwhelming that we almost, in our gratification, lose sight of this defect, for it has absolutely been a question of Champions or no Potatoes with us and other cultivators. That other fine variety *Magnum Bonum* until now has been too expensive to have been generally planted, but another year I hope to see it grown as largely as the Champion. I had always considered Mr. Luckhurst a very sober-minded writer, but in this case surely he has been a little precipitate. It is well to remember that both producers and consumers have a good opinion of the Champion, and it seems to be remarkable that Mr. Luckhurst fails to find even one qualification to recommend it. Your correspondent further states that we have plenty of varieties that possess all the good qualities of a Potato to supply us for eleven months of the year. I have tried most of the varieties introduced for the last twenty to thirty years, but up to the present time I do not know of one that I can depend on as possessing all the good qualities during the period named. For a main crop I find the two varieties above mentioned by far the most reliable. I have just been to the field and forked up a few roots of the Champion and *Magnum Bonum*, and really they are something to gladden one's sight, the tubers being large, numerous, sound, and clean. Paterson's *Victoria* growing by the side of them are a poor crop and much diseased—scarcely worth the labour of taking up. Last year our Paterson's were very bad; for every bushel we secured we had something like 19 bushels of Champions, and 12 or 14 of *Magnum Bonum*. The high approval I have adduced of the quality of the Champion will most certainly induce me to grow it extensively, unless Mr. Luckhurst can send me something better.—JOHN TAYLOR, *Hardwicke Grange, Shrewsbury*.

MR. LUCKHURST, on page 212, in reply to my note in the preceding issue, asks if he is to be "open to rebuke for refusing to cultivate a variety in which most of the points of excellence that a Potato should possess are conspicuous by their absence?" I reply, Certainly not. He is fully justified in discarding any variety that does not answer his expectations. But it is quite another thing to denounce the Scotch Champion for not being good in August. It cannot be good then. To my suggestion that the true variety was possibly not obtained "for trial," Mr. Luckhurst makes no reply, nor does he allude to the circumstance that the Champion was certificated for its good quality when cooked. I think it is a mistake either to overpraise or denounce any Potato that has not been subjected to a fair trial, and it is simply impossible for anyone to fairly prove the quality of the Scotch Champion in August. The true variety is not fit to eat then, but I have had it during the spring (when no other Potatoes were to be had) of excellent quality, and I think I know a good Potato, being—AN IRISHMAN.

I HAVE recently been through the four provinces of Ireland, and I am inclined to doubt that Champions in Ireland and England mean one and the same Potato, at least with some people. The Champion here is decidedly a very late Potato. Still, now approaching the middle of September, when many of the earlier kinds are wholly consumed, and the intermediate varieties in general use, it is quite green and growing freely. This is the case in the midland counties, every one of which I have been through

within the past fortnight, and it is still more so in Ulster. The observer can see the patches of Champion as he drives by at a considerable distance, while the haulms around of other varieties are long since withered. Visiting at Carlow, a typical eastern county, I examined stalks here and there and found the Potato, though not large, perfectly free from blight, and when well cooked—and I will recur to that point—of excellent quality, mealy, and dry. This was particularly the case when grown in a tolerably rich dry upland. A friend of mine had a quantity in a sandy moor, and these were not of such good table quality, but fine for seed, for which purpose they were grown. The stalks of those are still green. They were marked by blight spots on the leaves, but, unlike other varieties, the fungus appears to be unable to make any great progress in destroying the stalks or stems, I presume owing to their firm, fibrous, woody nature. So much for the east

of Ireland. Now for the west, which is of much more importance, as the people subsist to a much greater extent on the Potato crop, as they have no Wheat nor black Oats to depend on. There the peasantry were dependant on charitable aid in many cases, and their Champion Potato is later still; while leaving Sligo, Mayo, and Galway a week since they were still green, and in no case had been using for eating purposes. How can this be the same Champion referred to by Mr. Luckhurst and others, and that had been using in England a month since, and that your correspondents noted as being blighted before that time?—W. J. M., *Clonmel*.

AUGUSTE JURIE PEAR.

HAVING been certificated on August 24th by the Fruit Committee of the Royal Horticultural Society, this Pear demands



Fig. 53.—AUGUSTE JURIE PEAR.

further attention. The fruit as grown at Chiswick is above medium size, $3\frac{1}{2}$ inches long and $2\frac{1}{2}$ inches wide, obtuse ovate; skin green, becoming yellowish green as it ripens, with a thin speckled coat of russet on the side next the sun, and strewed all over with russet patches. Eye closed with tooth-like segments, and set even with the surface; stalk from 1 to $1\frac{1}{2}$ inch long, inserted without depression; flesh crisp, rather granular, sweet, briskly flavoured, and with a fine melon flavour. A valuable early Pear, ripe in the middle of August, and which is well worthy of general cultivation.

This Pear was raised at the Ecole d'Horticulture at Ecully, near Lyons, under the direction of our friend, the late M. Willemoz. It originated from seed of Beurré Giffard, sown on the 11th of August, 1851, and it was named in honour of M. Auguste Jurie, President of the Horticultural Society of the Rhone. The fruit as it is grown in this country varies very considerably from that grown in France. There it is shorter than with us; the

stalk is also shorter and the colour much brighter. Our friend Abbé Dupuy describes it as orange yellow and bright red on the side next the sun, and ripening in the end of July and beginning of August. It is thus that some of our countrymen make such mistakes in giving descriptions of fruits, which are mere translations from foreign works, and not made from the fruit itself as grown in this country. The fruit represented was grown in the Royal Horticultural Society's Gardens, where the tree grows well and bears freely as a pyramid.

PICTORIAL PERIODICALS.

REFERRING to coloured plates of flowers "AN ARTIST" writes: "These appear to be becoming a drug in the market. Once they were framed and cherished by gardeners, now they decorate tool sheds and such places, and appear to be very attractive to spiders, which veil them with their slender network. These plates are

nothing if not fair and honest representations of flowers. If overdone they deceive purchasers; if underdone they do an injustice to the flowers. Two remarkable examples of inaccurate flower delineation have just come under my notice. An imposing volume, 'Greenhouse Favourites,' published by Messrs. Groombridge, and a number of 'Paxton's Flower Garden,' issued by Messrs. Cassell, each contains a coloured plate of *Spiræa palmata*. Let anyone examine these two plates, and he will have a striking instance of the vagaries of art. The colour of the flower in one figure is lilac or pale washy purple with a few crimson blotches; in the other it is a dull heavy crimson, the flowers being shown in masses of ugly lumpishness. The two figures of the same plant are totally dissimilar, and neither of them does justice to a beautiful plant."

We have referred to the figures indicated, and are bound to admit that our correspondent has justification for his trenchant remarks; but we may remind him that the great number of inferior plates now published render those that are superior, and these are not few, of greater value.

We may now appropriately refer to the two works mentioned.

"PAXTON'S FLOWER GARDEN" (Cassell & Co).—On perusing the first number of the re-issue in parts of this work we regret to notice that the most characteristic representation that has yet appeared of *Spiræa palmata* is marred by faulty colouring; the plate of *Aërides crassifolium* is much better in this respect. The work is admirably printed on superior paper, and is revised by Mr. Thomas Baines, whose reputation as a plant-grower is a guarantee that the cultural instructions embodied in the work are reliable. But why capital initial letters are employed for specific names we are at a loss to understand. If a reform is being initiated it is in an opposite direction to the system adopted by all European botanists of repute, for the disposition of men of science and education is to reduce, not increase, the number of capital initial letters. We consider such letters as they are employed in "Paxton's Flower Garden" incongruous and a mistake; otherwise the republication of the work is timely, and if the two plates given monthly are of a superior character, each number will be cheap at a shilling. This work will not unlikely become very popular, and when completed will be a worthy addition to all gardeners' libraries.

"GREENHOUSE FAVOURITES" (Groombridge & Son).—This work requires little comment, as its merits were discussed in these columns when it was appearing in monthly parts. We need only remark that it makes a handsome and elaborately finished volume as regards binding, printing, and paper. Some of the coloured plates are also worthy of commendation, while others are unsatisfactory. The cultural particulars are generally correct, but in some instances they are of a tediously commonplace character, not quite in harmony with the ornate character of the volume. The lists of varieties are in respect of some genera very meagre, and those named are not in every case the best in cultivation at the present time, while curiously enough the chapter on Begonias does not include the most popular Tuberous section in which there are now so many grand varieties.

DRAINAGE—CULTIVATION OF THE SOIL AND MANURES.—No. 4.

THE preparation of manure is the next consideration. Through a press of general work the manure heap is often forgotten until it is actually wanted. Neglect in small matters often leads to disappointment. The manure from the stables is often taken, and the shorter portions shaken out for the purpose of making Mushroom beds, the long litter being left to decay; but when this is required for use considerable difficulty is experienced in separating that which is decayed from that which is not ready for use. To avoid this difficulty, and when the ground is frozen or too wet to allow of its being worked, men could be most usefully employed in turning and thoroughly shaking out every portion of this litter and placing it into a good-sized heap, and throwing the drainings from the stables, &c., over the whole as the work proceeds. Repeat this at intervals of a fortnight or so for about six weeks, and then allow it to remain untouched for about the same time, when it will be found in a fitting condition to be taken to the garden for general purposes. Manure in a more decomposed state would be preferable for some crops, but in a general way it is not desirable to allow it to become too decayed.

We must now turn our attention to the refuse heaps. I write "heaps," because there should be at least two of these. The one should consist of all vegetable refuse, weeds, and anything that will decay readily. Anything that will not decay in a short time should be placed by itself; and when dry enough, and in sufficient quantity, fire should be applied and the whole covered with the surrounding soil and left to burn out, a little attention daily only

being necessary to cover any portions that have been burnt through. This charred heap will be found most valuable for the garden, also for mixing with the soil for potting purposes. The vegetable refuse, &c., having been taken to a heap by itself, as labour can be spared it should be turned, and as the work proceeds a sprinkling of salt and a good dusting of quicklime added, which will kill slugs and other insects. If the whole is placed into a good-sized mound it will ferment considerably, which will destroy the germinating powers of any seeds from weeds. This should remain for some time and again be turned, this time putting the outside into the centre and *vice versa*. If this treatment can be repeated two or three times during the winter months the refuse can again be taken back to the garden, and will prove most acceptable food to succeeding crops.

It will take several years in a large garden to do as I have advised in these papers; but in conclusion I would say, If only a small portion can be done at a time, let it be done thoroughly, bearing in mind the old and true saying—"What is worth doing at all is worth doing well."—ROBERT D. LONG.

MEALY BUG.

YOUR correspondent Mr. Bardney on page 208 asks me if bug is in the drainage of a vinery how would I destroy it? I should recommend as follows, and it would help to improve the crop of the Grapes in quantity and quality.

I should mulch the border well and keep the soil moist, as in the growing season Vines are rarely injured by too much moisture. More injury is done by having the borders too dry. Unless mealy bug is destroyed in one season very little progress can be expected, though the insects can be kept in check. The best plan for eradication is in the spring, after the house has been well washed and the Vines painted in the usual way, to search everywhere about the period the Vines are breaking. I believe the house has much to do with the ease or difficulty that would be experienced in dealing with the pest.

A friend who also is fortunate in having no bug was once inclined to argue with me that it would not breed in his houses, which are low and moist, but it would be certainly dangerous to give it a chance on his Stephanotis. In houses that are dry and much exposed to the sun mealy bug would breed more rapidly than if they were more humid and cooler. It might be interesting to your readers if anyone can report entire freedom from brown scale. Years ago I had Peach trees affected with it, but this is exceptional. I, however, do not recollect ever seeing a plant stove without brown scale. I have proved that paraffin is very dangerous in the hands of the inexperienced for even a hardwooded tree. I should be disposed to say in regard to paraffin as an application for destroying any vermin on fruit trees—Beware! —R. M.

ST. FAGAN'S CASTLE.

THE traveller on the South Wales Coast line, on his way from Cardiff to Neath and Swansea, will—about three miles from the former town, and on emerging from a wooded gorge through which the river Ely flows from the picturesque vale of Glamorgan—have his attention attracted to a many-gabled mansion of unpretentious style standing on an eminence to the right not far from the railway. This is St. Fagan's Castle, one of the seats of Lord Windsor, who recently attained his majority. The mansion, which has still some remains of the castellated style, stands in friendly contiguity to the parish church (a plain-looking edifice dedicated to the saint whose name it bears), and to the village with its many thatched cottages spreading round two sides of it for some distance. The village has a neat appearance; it is healthy and clean, has a good schoolhouse and a comfortable inn. St. Fagan's is celebrated in the history of this country for a meeting held in the old village between King Charles I. and the leaders of the men of Glamorgan, and for a sanguinary engagement fought in the vicinity during the protectorate of Oliver Cromwell.

Lord Windsor owns 1700 acres of land in this district of South Wales, extending from St. Fagan's to Caerphilly, besides the ground on which stands the town of Penarth, with its docks, at the mouth of the river Ely, four miles south-west from Cardiff. Penarth is becoming a fashionable place for well-to-do people, and a great many costly villas have been built in it within the last few years. His lordship, besides other improvements, has made a handsome promenade along the margin of the beach for some considerable distance, which is tastefully laid out, and planted on either side with ornamental trees and shrubs. He has also had trees planted near the footpaths of all the roads and streets, and we learn he is going to lay out a public park for the people on a beautiful site.

The pleasure ground attached to the Castle of St. Fagan's is not of great extent, but it has been planned in a way to afford within a limited compass considerable variety of attraction. One feature of special interest and beauty is a series of four small ponds formed on a succession of terraces at the side of the plateau on which the Castle and gardens stand. The ground slopes both southward from the front of the Castle and westward, and advantage has been skilfully taken of the lower portion of the latter slope to form the ponds, which have a very ornamental and refreshing character when seen from the terrace above. The ponds are fed by a natural spring, which forms a small brook, having its start 200 or 300 yards from the upper lakelet. The clear water winds its way over bold pieces of rockwork, forming cascades till it enters the first pond. Thereafter it makes its way from pond to pond over the green banks which separate them by a succession of miniature waterfalls, till at the last it is carried by a stream to the river Ely in the valley below. On the side furthest from the Castle these little sheets of water are bordered by a line of Western Plane trees, and on the rising ground above them are some finely-grown specimens of Conifera and other trees, and a large maze, the hedges of which are formed of different varieties of Conifera, neatly clipped and kept in good order. In the centre of the maze are two fine Wellingtonias more than 40 feet high, the trunks of which 3 feet from the ground measure respectively 9 feet 7 inches and 9 feet 2 inches in circumference. On the side of the ponds next to the Castle they are bordered by grass terraces with flights of stone steps leading to the plateau above, the terraces being separated from the kitchen gardens by a broad gravel walk and wall. Fig trees and Vines are trained on the wall, and the border between the wall and gravel walk is tastefully planted with flowering shrubs. The ponds contain trout and other fish, and we understand Lord Windsor entertains some idea of using them for experimenting on the artificial breeding of salmon, or stocking them wholly with trout.

The gardens, which immediately adjoin the Castle on the west side, are not extensive, but are well arranged and laid out so as to give the maximum of effect, and of utility for the growth of fruits, flowers, and vegetables. The fruit and vegetable departments are separated from the Castle by a neatly laid-out geometrical flower garden, with fountain in centre and broad gravel outer walks, and beyond this a small bowling green. A gravel walk and Arbor-Vitæ hedge, with herbaceous border in front, encloses this portion of the gardens, which is in keeping with the style of the mansion. The other portions of the gardens are devoted principally to the growth of fruit and vegetables. The soil is good in some places but shallow, not exceeding 2 feet in depth, resting on a subsoil of rotten rock; no drainage, therefore, is required, and the soil can be worked in a few hours after the heaviest rainfall.

Mr. Crossling, his lordship's gardener, has improved the quality of the soil very much within the last few years by removing a portion of the subsoil annually and adding fresh soil to it from old pastures in the neighbourhood. Fruit trees are well managed at St. Fagan's. Apricots, Peaches, Nectarines, and Plums do well on the walls. Mr. Crossling pays great attention to them, and the result of this is fine crops in ordinary seasons. Apples and Pears with a few exceptions are a failure here, as in other places this season. Morello Cherries on a north wall were good, and small fruits most abundant, except Raspberries, which were nearly killed to the ground last winter owing to the canes having failed to ripen properly. The soil and situation seems to be well suited to the growth of Strawberries. We never remember having seen a better crop of President, or healthier plants than we saw here. The plants were literally covered with large fruit of the very best quality. Vegetables were abundant and good, and the gardens throughout thoroughly cropped and in first-rate order.

In a space of ground to the west of the kitchen gardens, which was wont to be covered with old Pine pits and other buildings, Mr. Crossling has recently established a rosery, retaining of the old erections only the enclosure walls. Here are to be found a fine collection of the choicest Roses, neatly arranged in narrow beds, with grass walks between, so as to afford a most pleasant means of minutely inspecting each bloom as it opens. The south portion of the enclosure wall was planted with Camellias a few years since, but they have not succeeded satisfactorily, and it has been planted with Tea Roses, which grow luxuriantly and flower freely. On the west side, abutting on the rosery, is a very useful storehouse for keeping large Sweet Bays and other plants in winter, which are placed on the terraces in the summer months. In front of this are some of the finest trees of Evergreen Oak that are to be found in South Wales—noble specimens in robust health, with straight clean trunks without a branch for a considerable distance, terminating in fine evenly-balanced heads.

The glass is limited in proportion to the size of the place. It consists of a vinery and Melon house in one range, and a greenhouse with pits in front in another. Besides this, there is a Melon ground with pits, frames, &c. The vinery is filled from end to end with one Black Hamburgh Vine, which is planted in a border outside. It enters the house in front at the centre. Two main rods are led horizontally along the top of the front sashes to either end, and the fruiting canes from them are trained at regular distances to the top of the trellis. For the sake of variety Mr. Crossling has inarched a Buckland Sweetwater Grape at one end, and a Gros Colman at the other. The Vine (like the place generally) has been much improved within the last few years, and this season it is bearing a crop of Grapes which would be difficult to surpass, taken as a whole, for size of bunch, berry, and finish, even with a house of Vines much younger treated on the restriction system with a Vine to each rafter.

In the house adjoining was a fine crop of Melons. Here they are treated liberally, and the fruit was large and well netted. One end of the house was planted with Tomatoes trained on single stems close to the glass. Mr. Crossling pays great attention to the culture of this fashionable fruit (what else is it?) both in and out of doors. He has tried many varieties this season with the view of testing their respective merits, but has failed to find one of them to equal his own variety (Glamorgan), which was raised by him a few years ago. It has something the appearance of Trophy, but the fruit is much larger, the plant more prolific, and the habit is quite different to any variety that we know.

The earlier occupants of the greenhouse were mostly placed out of doors at the time of our visit, and the house was filled with neatly grown Zonal Pelargoniums and other plants for table decoration, and on the back wall were some fine healthy Tomatoes for late use. In the Melon ground, which is well sheltered, having a fine southerly exposure, were good crops of Melons and Cucumbers growing in pits and frames.

In conclusion we would say that all departments of this charming place are carried on with care, intelligence, and success. Mr. Crossling is entitled to no small credit, not merely for the neat way in which the grounds are kept, but for the splendid specimens of vegetables, fruits, and flowers he produces, as has been certified by the prize lists of some of the best shows in the west of England.—RESEDA.

THE EFFECTS OF ELECTRICITY ON VEGETATION.

A FEW years ago a remarkable occurrence in connection with injury to vegetation led to a discovery which not only explains most fully and clearly the occasional deleterious effects to plants trained upon galvanised iron wire, but at the same time it has thrown some light upon the laws of growth and disease, and serves to elucidate a class of phenomena which had been previously altogether incomprehensible.

A large plant case on a bronzed stand, purchased from one of the first houses in London, and planted with Ferns by Mr. Kennedy, late of Covent Garden Market, was taken to Queen Anne Street, Cavendish Square, and placed in a situation in every way favourable to the Ferns, but, strange to say, instead of their flourishing or even continuing in a fairly healthy condition, they all died. Attributing this, as one would naturally, to mismanagement, the case was cleaned and replenished, but only to experience a similar disappointment. It then became evident that some unusual condition must pertain to the case itself serving to effect this destruction, and on closer examination this was discovered. The case and framework being constructed of zinc and the bronzed table of cast iron, neither the under surface of the former nor the upper surface of the latter having been painted, the two metals were in contact, and hence a galvanic action was set up between them.

Now as the uninitiated reader may be sceptical as to any possible influence to any practical extent from the mere contact of two dissimilar metals, let him place the end of a zinc tally upon the tip of his tongue, and one bow of a pair of common scissors under the tongue, and then bring the other bow to touch the zinc so that the two metals touch each other at one end at the same time that the moist tongue touches the two metals at the other end. At the moment of bringing them together a peculiar saltish metallic taste will be experienced and repeated every time the metals are separated and brought together again. But now substitute a piece of silver—a half-crown, for the iron of the scissors under the tongue, and a much more perceptible effect will be produced. Such, then, being the effect of the contact of the zinc case with its iron stand, the obvious remedy was to separate them by the insertion of insulating strips of wooden laths. This was immediately had recourse to, and in a very few hours the plants, losing

this galvanic influence, had assumed quite a different appearance, and soon acquired a healthy luxuriance. Doubts being expressed whether it were possible that such apparently insignificant means could have alone been the cause of the mischief, and nothing short of ocular evidence being convincing, the wooden laths were removed, and the case full of healthy Ferns was thus again subjected to the galvanic action as it had been originally. On the following morning, or after about twenty-four hours, the plants were dull and drooping, mildew had appeared, and the case looked unnaturally moist. The next twenty-four hours, however, brought matters to a crisis. Fronds were decaying and had become covered with fungoid growths, festooning from one to another like cobwebs; whilst the whole interior, both plants and soil, emitted most powerfully the peculiar Mushroom odour, and in addition to which various minute fungi had sprung up in the vegetable remains constituting the soil below. This evidence having been accepted as sufficiently conclusive, the laths were replaced so as to destroy the galvanic action and render the case innocuous as before. On examining it some few hours afterwards the change that had taken place created no little astonishment. Hardly a trace of the former cobwebby appearance was to be seen; all the fungi had been dried up and had disappeared, and the atmosphere within had become clear and dry.

It is now evident that galvanised wire, having an external surface of zinc, when fastened with iron nails must inevitably be equally galvanic in its effects, yet when the fastenings are galvanised too the whole is rendered perfectly innocuous like the insulated plant case. It is only when dissimilar metals are in contact with each other that the wire becomes hurtful. But in order to establish more fully the identity of these phenomena with electricity, a small battery was so arranged that the two separate conditions should be going on simultaneously. A portion of Cress seed was spread thinly on a piece of thick wet flannel placed on a piece of glass, and the two terminal wires from the battery were made to rest upon it some little distance apart, so that the communication of one with the other was left to be completed by the moisture; consequently these wires represented respectively the zinc and the iron, and were anticipated to produce the same corresponding results, as they unquestionably did. The first signs of growth took place amongst those seeds surrounding the wire representing the zinc or positive end. They, however, made very little progress, but soon died and became blackened, and ultimately tenanted by the mycelium of a fungus. At the opposite or negative end the seeds were longer in germinating, but they became greatly swollen and retained their full brightness, ultimately acquiring a healthy and luxuriant growth, which they maintained so long as the action was kept up.

These very significant features demonstrate the highly important fact that under one condition of electricity plants are killed but fungi flourish, whilst under the opposite condition fungi are destroyed and plants luxuriate. As, however, the direct application of electricity on a useful scale is quite beyond the limit of practicability, it is hence very fortunate that electrical attraction and chemical affinity are similar. We are enabled to accomplish the same ends by having recourse to chemical appliances. Liebig in one of his writings states that "we know nothing whatever of the chemical changes taking place at the surface of the earth," which was unquestionably true at that time, but happily does not apply to the present time. The preceding facts, in conjunction with others belonging to the same class, serve to elucidate these proceedings in the most unmistakable manner. One of the first lessons derivable from these views is that manures may be separated into two opposite divisions—one corresponding with the zinc, and the other with the iron, as above. The distinctive feature of these divisions is that one supplies oxygenated food to the plants, while the other is wholly devoid of oxygen, and leads to the production of mildew and other fungi. Ammonia consists of only hydrogen and nitrogen without a particle of oxygen save in the water in which it is dissolved, hence it cannot possibly afford any oxygenated nourishment to the plants through its roots, and therefore we must look for some other direction for its effects. On the other hand, all those substances which redden blue litmus paper owe this property to the presence of oxygen, and these have been found by experiment to be readily absorbed by roots, whilst ammoniacal solutions in their alkaline state are rejected. These results have been verified practically on a very fairly extensive scale. An old vineyard, 30 feet long and containing eight Vines, had become so infested with mildew as to be worse than useless, and the opinion of one of the oldest and most successful Grape-growers of the district was that the only chance of rectification would be by cutting down and re-grafting. Coupled with this the head gardener suggested that unless the border were to be dug-up and

remade he thought the other would be of little or no use. The advice of neither, however, was accepted. The circumstance was deemed too valuable in connection with these means to be lost. Having witnessed under what conditions mildew originated and how it was exterminated by an opposite treatment, this was carried out on the same principle, and the result was, that in the following season a very fair crop of Grapes was obtained, which coloured most satisfactorily, whilst not a trace of mildew was to be found in the whole house. Now this mildewed condition had been brought about by the excessive use of stale night soil, the ammonia of which had done the mischief; therefore, as a test trial, one of the end Vines was liberally supplied with a solution of guano, and on the following morning spots of mildew were traceable all over that Vine, leaving no doubt as to its origin. Tea and other Roses have been treated with equal success, and therefore there is reason to hope that this pest may soon become a thing of the past.

In the above-recorded experiment with Cress seed it was observed that those seeds around the positive or oxygen-attracting end of the battery were not only killed, but their husks were blackened like a piece of half-burnt wood. The like of this may be witnessed in almost every garden. Stems and branches of trees and plants trained in contact with rusty iron, such as stakes and trellises, or fastened with iron hooks or nails to walls or fences, are killed precisely in the same manner. Hence, although oxygen is so essential to the roots of plants, it is destructive to their leaves and stems. These experiments teach us the true use and action of oxygen in life, and prove it to be very different from what has hitherto been suspected; but as it forms one of the chief agents in growth it is of too much importance to be dragged in at the end of a chapter, and therefore (with the Editors' permission) it will be better that it should be treated more fully in a separate communication.—W. K. BRIDGMAN, *Norwich*.

CHAPTERS ON INSECTS FOR GARDENERS.—No. 11. NEW SERIES.

WHEN considering in a methodical manner the well-nigh innumerable host of species that are placed in the class Insects, we may go either from the higher to the lower types, or from the lower to the higher. Having pursued in these articles the latter plan, and started with the humble wingless insects, such as the

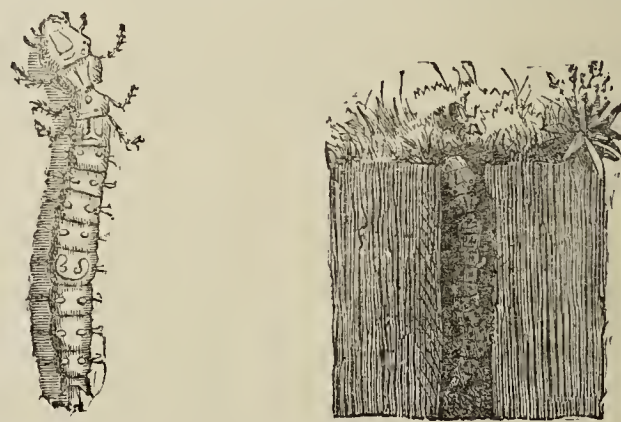


Fig. 54.—Larva of Tiger Beetle and its tunnel.

fleas, of the order Aptera, we now reach, in conclusion, the order Coleoptera, which is by general agreement of naturalists regarded as the highest in structure amongst the orders. Beautiful in colour and marking as are many of the butterflies and moths, several circumstances, especially their possession of a sucking mouth instead of jaws for biting, put them below the rank of the beetles and other insects less attractive in appearance than the gilded flies that disport in the sunbeams, or the less showy yet often richly-tinted moths that haunt the evening shades. Another thing that is notable about the order of the beetles is that it surpasses all the rest in the vast array of distinct species that have already been recognised or suspected. Probably at least fifty thousand are contained in collections, and every year is adding more as travellers penetrate new regions. Even these small islands of ours present us with about three thousand species; only a few of these, however, it is pleasant to know, do injury to our fields or gardens, though these species are at times both numerous and active.

It is only necessary to mention some of the beetles that are noticeable on cultivated ground to show how great is the variety of size and form observable amongst the Coleoptera. We may name as illustrations of the order such species as the cockchafer, the Rose beetle; the skipjack, the larvæ of which is the wireworm,

pre-eminent amongst several larvæ so named; the Pea and the Pear weevil, instances out of a group of garden infesters; the Asparagus beetle, the cocktail, and the ladybird. Beetles there are that have not been so designated in popular phrase, like the Turnip flea (*Haltica nemorum*), one of the many species that are able to leap and skip as well as walk or fly; and other insects, of which the cockroach (*Blatta orientalis*) is a well-known instance, are called beetles, though really belonging to decidedly different groups. To the word "beetle," it might be added, belongs a fragment of antique history, for some think our Saxon ancestors thus named certain insects because of their hard or tough exterior; but it is more probable that *bitl*, its first form, came from *betan*, to bite, suggested by the destructive operations of the insects as seen in the fields or woods.

Coleoptera have, however, taken their scientific name from the fact that the fore wings are horny and leathery, covering the hind wings entirely in most species when the insect is not in flight. These fore wings do not help a beetle when it is in the air, except so far as they may steady its movements; the whole work of flying is performed by the hind pair, which are large, and contain strong nervures. A few beetles are incapable of flight, and some of the water beetles, though able to fly, seldom take excursions in the air. The mouth of a beetle when examined shows the usual upper and lower lip, of a horny nature in this order, a formidable pair of jaws or mandibles, and a second and more delicately constructed second pair below the first, which are called maxillæ, and furnished with two feelers or palpi. The legs of beetles in their jointing give important characters, by which groups are distinguished, as also do the antennæ, which are sometimes thread-like, sometimes knobbed, sometimes resembling a saw, a comb, or a fan, or a necklace, and other variations. Occasionally the shape of the antennæ is associated with certain habits; thus most of the beetles with slender antennæ prey upon living insects.

Anyone who has picked up, as most probably have, a specimen of that frequent visitant to gardens at dusk, the dor or watchman beetle, must have discovered that this beetle has a remarkable strength of muscle for its size. M. Plateau experimented with an apparatus so contrived as to test how much a beetle could pull along. While one of the ground beetles could draw seven times its own weight a cockchafer could draw fifteen times, and the species called *Trichius fasciatus* about forty times. The larvæ of beetles, familiarly known by the vague term "grub," are also muscular in body and limb, usually six-footed, though a few almost lack these useful appendages. Some are feeders in prominent positions upon animal and vegetable substances, but in the general way beetle larvæ prefer to conceal themselves, hence it happens that many common species are unknown in their early stages of life. The pupa state is passed in quiescence, and the outline of the future imago is traceable more or less clearly on the exterior of the pupa skin. It is not requisite that we should enter here into minute particulars about those divisions amongst the beetles which serve for scientific classification; but every gardener ought to know the distinctions which separate the principal tribes from each other as a help towards the recognition of individual species that may be hostile, favourable, or neutral. Speaking broadly, we might say that mankind derive a number of benefits from the race of beetles that overbalance the injuries done by some, and in the narrower range of horticulture it is almost probable though not proveable that our beetle friends and foes are about on an equality with each other. Thus we start, when taking a closer survey of the Coleoptera, with the tribe or section of the Adephaga, which have long slender antennæ, and maxillæ furnished with two palpi or feelers. These are all predacious, and again divided into land and water beetles, one having the legs formed for running, the other for swimming. The tiger beetles of the first genus *Cicindela* are of elegant shape and bright colours; it is their habit to expose themselves to view fearlessly during daylight. *C. campestris*, the common tiger beetle or "sparkler" (fig. 54), is frequent on sandy banks and heaths in the summer, and is occasionally seen in gardens. They kill numerous insects less than themselves, or even larger; the larvæ also live upon various "small fry," which they catch by means of a tunnel excavated to at least the depth of a foot. The earth that has to be removed is carried out by the larva in loads, which are dexterously rested upon the broad flat head. Instead of lurking at the bottom of its tunnel, as does the larva of the ant-lion, the larva of a tiger beetle lodges itself just below the mouth by means of a hump upon the back which has two curved hooks. When some insect slips into the opening the larva rushes forward, and seizing its prey glides down with it to the end of the burrow, where the capture can be eaten up at its leisure. Supposing a colony of these larvæ could be established in a garden they might be of some use in destroying insects. Their habit, however, leads

them to prefer open and sandy places, though one species, *C. sylvatica*, is presumed to have a liking for woods. The larva life in these, as in many beetles, endures much longer than that of the perfect insect.

Some beetles belonging to this tribe exemplify the fact, that an erroneous idea concerning the habits of an insect is apt to be formed owing to the circumstances under which it is found. We have nine British species of the genus *Dromius*, small beetles with slim flattened bodies, and which, though occasionally seen under stones, are usually resident under the bark of trees. Hence it has been imagined that they perforate the bark or wood, which is not the case, their object in life being to devour various insects that hide between the bark and wood, from whose proceedings mischief actually does arise. But when clearing off loosened bark from the trees that have been attacked by insects, it is difficult to separate the species that may be brought to light. *Clivina fossor* is an instance of a predacious beetle that deposits its eggs upon rotten wood, in which the larvæ construct burrows. The beetle varies much in colour, being black, brown, or red, and the darker specimens are those, it is noticed, that live partly exposed, as amongst heaps of decaying leaves.—J. R. S. C.



HARDY FRUIT GARDEN.

LITTLE requires to be done in this department at the present time except attending carefully to ripening fruit. Trees against walls should be examined every morning when the dew is off, and all Peaches, Nectarines, Plums, Figs, &c., should be removed as soon as ripe, and their flavour is improved by keeping them a few days on shelves in a well-ventilated fruit room. Fruit that is to remain upon the trees for some time longer—such as Morello Cherries, Coe's Golden Drop Plum, and other late varieties—must be protected against wasps by hexagon netting. The finer varieties of Plums may be enclosed in muslin bags, and Peaches, Nectarines, and Figs may be secured by similar means. Gather the early Apples and Pears as they become ripe, placing them carefully on shelves in the fruit room. Considerable judgment is requisite in gathering the fruit, for if taken too soon they will shrivel; and if allowed to remain too long upon the trees the flavour is deteriorated, besides not keeping so long or well, which also occurs when the fruit is bruised or injured. Examine all espalier, cordon, bush, and pyramid fruit trees, as well as trees against walls, and remove unnecessary shoots, nailing or tying-in the growths, so as to afford the young wood and spurs the full influence of sun and air. Autumnal Raspberries will soon begin to ripen their fruit, and will require to be carefully protected from birds. This crop in most establishments is exceedingly useful, and it is surprising that they are not more generally grown. The plantation should be formed in an open situation, the ground liberally enriched, and as soon as the crop is gathered the canes should all be cut down close to the surface of the soil. In the spring carefully select from four to six of the strongest canes to each stool, cutting away the others. Strawberry plants that were turned out of pots after being forced will be about setting an autumn crop, and the fruit will soon require the protection of nets; and if span-roofed frames are available they may be placed over the plants, air being freely admitted, and this will improve the quality of the fruit. Plants that have been retained in pots for autumn fruiting should, as soon as the fruit is fairly set, be transferred to frames or positions near the glass in a light well-ventilated house to ripen the fruit, whilst later batches should be moved to frames or houses, and have air freely night and day until the fruit is set; but it swells better in a rather closer atmosphere and a temperature of 55° to 65° artificially, and as the fruit changes colour a lessened supply of water at the roots with a drier atmosphere will be necessary to secure flavour.

FRUIT HOUSES.

Melons.—Plants swelling their fruit will require considerable attention to guard against canker. The remedy that has been frequently pointed out is freshly slaked lime pressed well into the affected parts,

repeating the application as may be necessary. Cracked fruits will need to be guarded against by the reduction of the moisture both at the roots and in the atmosphere. The temperature should be maintained at 70° to 75° by day artificially, which may fall to 65° in the morning. The house will need damping morning and afternoon where crops are swelling off, but only on very bright days must the syringe be employed over the foliage, and that early in the afternoon. Earth-up the roots of the last batch directly the fruit commences swelling. Plants in frames and pits must be sparingly watered, and when necessary afford it early so as to have the foliage dry before nightfall. Renovate the linings to finish off the crop directly the heat is found to be waning, and employ a covering over the lights on cold nights.

Cucumbers.—The temperature should be maintained at 65° minimum and 75° maximum from fire heat, with a rise of 10° to 15° with sun heat. Remove unhealthy leaves and old growths, stopping and training the others as necessary. Employ the syringe sparingly, only damping the foliage on bright days so that the foliage may become dry before nightfall. Damping will require to be done in the morning and again in the evening. Continue the preparation of fermenting materials whether tan or dung; the former will only require to be turned over once, but the latter will need be turned over about every fourth day as soon as warmed through. Pot off seedlings as they become fit, and keep them near the glass to ensure sturdy growth, pinching out the growing points at the second rough leaf. Be sparing with moisture to plants in pits and frames, maintaining the temperature above indicated by renovating the linings, and employing a covering of mats over the lights on cold nights and closing early.

Pines.—Young plants that have been liberally and properly treated show at this season luxuriant growth, and as the influences inducing this state of the plants are decreasing both in force and duration it will be necessary to take steps to prevent the growth becoming soft and attenuated. A drier atmosphere about the plants should be maintained to consolidate the growth, employing fire heat when unfavourable weather prevails. Syringe occasionally early in the afternoon on sunny days. When water at the roots is necessary give a plentiful supply of weak liquid manure at the same temperature as the bed; keep the bottom heat steady between 80° and 90°; attend well to the ventilation, closing the house at a temperature of 80°, maintaining the night temperature at 65°. Encourage plants on which the fruit is swelling with heat and moisture, the night temperature ranging from 70° to 75°, and in the daytime from 80° to 90°, closing the house at 85°. Plants for starting into fruit early in the ensuing year should be selected from those which were started last March, and be brought together about the end of the month where they can be rested for about six weeks.

FLOWER GARDEN.

With shortening days and genial night dews grass is growing fast, and will require frequent mowing and rolling to secure a good solid greensward for the winter. Weeds on gravel walks also grow freely in late summer and autumn, and should be eradicated even if the walks have to be broken up. Hand-weeding may be saved by watering with salt water, the surface having a good sprinkling during sunny days, which will not only destroy weeds but will check worms from casting up and disfiguring the surface. The leaves of deciduous trees in some instances—notably Beech, Sycamore, and Lime—are already falling, and should be swept up frequently. Pick off all decayed flowers and foliage as soon as perceived, keeping the surroundings as well as the beds as trim as possible. All propagation to be finished excepting *Violas* and *Calceolarias*, for which there is ample time, all cuttings being closely watched to prevent damping, and expose them fully on fine days to thoroughly harden them for successful wintering.

The bulb season has begun, and these should be procured at once, not only to ensure good bulbs, but to have them in readiness for planting directly the ground becomes vacant. For borders there are many that should be planted now, as the border *Narcissus*, which are among the most useful and beautiful of spring-flowering bulbs; some of the best of which are *maximus*, *nobilis*, *cernuus* and *var. pleno*, *bicolor* and *vars. Horsfieldi* and *Empress*, *moschatus*, *rugilobus*,

Incomparabilis vars. alba, *flore-pleno*, *Stella*, *aurantiacus plenus*, and *sulphureus plenus*, *biflorus*, *poeticus*, and *vars. angustifolius*, *ornatus*, and *flore-pleno*. The common varieties should be planted extensively in shrubby borders, &c., such as *N. pseudo-Narcissus* (*Lent Lily*), *N. Telemonius plenus* (*Double Daffodil*), *major* (*Trumpet major*), *N. incomparabilis vars.*, and *N. poeticus vars.* Jonquils also do well in borders, particularly *Campernelle*. It is hardly possible to have too many of such plants as *Snowdrops*, *Winter Aconite*, *Scillas*, *Muscari*, *Crocuses*, *Anemones*, *Triteleias*, &c., all of which should be planted with as little delay as possible. Hyacinths and Tulips are indispensable for a display in beds, and are equally valuable for mixed borders. Roses will be better for having the dead flowers cut off and long sappy growths shortened, to ensure the plumping of the buds at the base, but not so closely as to start the buds into growth that the shoots will need to be pruned to in winter for next season's flowering, otherwise that will be destroyed. The stocks recently budded should be examined, loosening or removing the ligatures as required. Cuttings of well-ripened wood strike readily inserted in sandy soil on a north border. Annuals may still be sown in patches where the plants are intended to flower, thinning them out when large enough. *Anemone japonica* and *var. alba* are now fine, the latter especially, also *Sedum Telephium purpureum*. Phloxes make a grand display. *Senecio pulcher* (very fine), *Sedum spectabile*, *Veronica spicata*, *Polygonum vacciniifolium*, *Tritomas*, *Spiraea Filipendula*, *Hypericum calycinum*, *Hyacinthus candicans*, and *Fuchsias* are all beautiful.

PLANT HOUSES.

Greenhouse.—Hardwooded plants must be at once placed into their winter quarters. The weather lately being favourable to the ripening of the wood will have induced a free disposition to flower, and the wood will be in good condition for resisting mildew. Every plant, however, before being taken indoors must be examined, and if the least trace of mildew exists it must be destroyed, or it will spread with amazing rapidity when the plants are taken indoors. Dusting with sulphur is an effectual remedy, the plants being laid on their sides and syringed, and whilst wet apply the sulphur, the plants being allowed to remain on their sides until dry, when the sulphur should be thoroughly washed off and the plants still continued on their sides until the plants are dry, for on no account must the sulphur be allowed to pass into the soil. Plants that have the soft leaves and make growth in the winter should be given the lightest positions, such as *Boronias*, *Gompholobiums*, *Pimeleas*, *Tremandras*, and *Phenocomas*. If Heaths have to be wintered in the same house they should be kept at the coolest end, and by ventilating more freely at that part they may be managed, but a separate house is much better for them. The general stock of hardwooded plants will require the night temperature kept at 35° to 40°, but *Leschenaultias*, *Aphellexises*, and a few others must not have the night temperature lower than 40° to 45°. Heaths that require more root room may now be repotted, proportioning the shift to the character of the plants and the condition of the roots. Free-growing kinds that have been in 12-inch pots and have plenty of active roots will bear a shift into 15 or 16-inch pots, but it is not safe to give large shifts to very hardwooded kinds, as they produce roots slowly. See that the ball in each case is thoroughly moist before potting. After potting place the plants in a house where the side lights can be kept closed for about three weeks, and a sufficiency of air given by the roof lights.

Camellias.—The plants if they have been placed outdoors should be taken in before there is danger of frost or drenching rains, which causes loss of roots or the buds to drop. The thorough cleaning of the foliage will be of advantage to the plants, and if the plants are infested with scale it must be removed with a brush and sponge. Plants that flowered early and were well attended afterwards would set the buds early and will now be well advanced; they will flower freely in a house kept a little warmer than an ordinary greenhouse, but there must not be any attempt at forcing them, or the flowers will in all probability fall before opening. To accelerate flowering increased temperature and a little more moisture are all that are needed.

Azaleas.—Plants that flowered early or were forced will now have matured the buds. If the plants are wanted to flower early again they should not be retained too long, but be moved to a house where

they will have a temperature of 40° to 45° at night and 50° in the day, so that they will come on with little forcing. For forcing the early varieties should be employed, such as Borsig, Narcissiflora, Raphael, all three with double white sweet-scented flowers; Fielder's White, alba, vittata elegans, and Jean Vervaine, one of the freest and best of Azaleas, which are all valuable for affording cut flowers, and for decoration. The later-flowering plants must not be shaded any longer, and they should at once be tied into shape before the growth is complete, so that the points of the shoots may assume their upright position.

Chrysanthemums should have the final staking and training, the upright bush form being most suitable for general purposes. Employ no more stakes than are necessary to keep the plants in shape. Where large flowers are wanted the side growths must be removed from the principal shoots, retaining the latter in numbers proportionate to the size of flowers required, retaining a single flower to each shoot, removing the flowers not required as soon as they are large enough to cut out with a pair of scissors. Plants trained with single stems for specimen blooms must also have the side growths removed, and all flower buds except the central one. Afford liquid manure liberally. Pot the chief batch of Hyacinths, Narcissuses, Tulips, Crocuses, &c., plunging the pots in a good bed of ashes 6 inches below the surface, and if there is convenience for throwing off heavy rains it will be an advantage.

TRADE CATALOGUES RECEIVED.

Louis Van Houtte, Ghent, Belgium.—*Catalogue of Azaleas, Camellias, and Rhododendrons.*

Robert Mack & Son, Catterick Bridge, Yorkshire.—*Catalogue of Roses.*

James Yates, Stockport.—*Catalogue of Bulbs.*



*** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

The Growth of Beans (J. H.).—There is no foundation whatever for the absurd story to which you refer, and it is surprising that such singular notions can be entertained now-a-days.

Wall Trees (Ramalho).—All kinds of fruit trees that will succeed against a brick or stone wall in your district, will also succeed against a flint wall of the same aspect. Peaches and Nectarines would no doubt thrive well, as also would Pears; but the wall is too low for growing fruit trees satisfactorily.

Vine Wood Injured (Fleetwood).—We shall be glad to receive some leaves of the infected Vines, which we think will aid us in determining the cause of the peculiar substance growing on the bark. Please send us a fair sample, say half a dozen leaves, not selecting those that appear the most healthy.

Bulbous Irises (E. S. W.).—For culture in pots *Xiphion persicum* and *X. reticulatum* are the two best and cheapest you can employ. Several bulbs should be potted together in a 48 or 32-size pot, in a rich light compost of loam, leaf soil, and sand, with a small proportion of well-decomposed manure. Place the pots near the glass in a cool house or frame, and the plants will flower several weeks before those out of doors. The Spanish Irises should be planted during the present month or early in the spring.

Bracken for Mulching (Sussex).—The bracken referred to as employed for covering the ground between the rows of Strawberries was placed on the beds when the plants commenced flowering, and consequently had been cut during the preceding autumn. The bracken is stacked for the winter and cut for use in the spring, the same as cutting hay. The Strawberry beds were heavily watered before the covering was applied to the surface.

Farfugium grande (A. Boyle).—The variegated form of this plant is usually the most marked when the plants are grown in rather poor soil, and in a position not too moist and shaded; but slight shade is not objectionable. We have recently seen plants in the most satisfactory condition growing in shallow soil, and shaded from the mid-day sun from 10 A.M. to 4 P.M. Try your plants in a similar position.

Wintering Mentha Pulegium gibraltarica and Herniaria glabra (Derby).—The former will pass the winter safely in a dry position on the

south side of a wall or fence, small tufts being planted at the present time, to become established before winter. It is well, however, to plant them so that they can be covered with handlights or a frame in very wet or severe weather. They may also be wintered in boxes in a cold frame, to be well ventilated during all favourable weather. *Herniaria glabra* is perfectly hardy.

Grapes Decaying (J. M., Cheshire).—Various causes have contributed to the very unsatisfactory state of your Grapes. In the first place, the Vines appear to have been rather too heavily cropped, and when such is the case the skins of the berries are always deficient in texture, and consequently the fruit does not keep well. Next, the bunches were not thinned sufficiently for keeping for three months and more after they were ripe. They were thinned correctly for use in June, but not for hanging until the present time. Further, the atmosphere of the house has been kept too moist and close, and mouldy berries have not been cut out so promptly as was desirable. Possibly the house is in a damp position, or there may have been some leakage from the roof. When Grapes are ripe and the slightest appearance of mould appears on any berry that berry should be cut out, or the mould speedily spreads through the entire bunch. With more vigorous root-action the fruit would be produced in better condition for keeping after the crops were ripe.

Stopping and Training Chrysanthemums (Artisan).—If you require a few large blooms on each plant for exhibition purposes the axillary growths which you show in the sketch must be pinched out; but if you desire a great number of smaller flowers to produce a gay effect in a conservatory and for cutting for vase decoration some of the uppermost growths may remain. The leading growths must not be stopped now. The shoots on the dwarf specimens must be trained so that when finished the plants have somewhat of the form of an inverted deep saucer, the flowers being at regular distances all over the plant, and of the requisite height for forming a smooth surface. Much judgment is necessary in training them so as to produce the result required, some shoots having to be bent considerably to bring their points to a given position, and the growths of your plants are not yet long enough for this to be done. As to continuing training the shoots horizontally, that must depend on the question of your having "stuff enough" to fill up the centre well.

Pruning Climbing Rose (A Reader).—If the other portions of the plants are strong and healthy you may shorten the rampant growths now, and if very crowded remove some of them entirely; but if the older portions of the plants are weakly and not likely to produce good flowers, then you must retain the firmest, short-jointed, and most promising of the young growths, cutting the older and weaker parts away. No one, however, can satisfactorily answer a question such as yours. We can only make suggestions, to which you must bring your own thought and intelligence to bear in carrying them out. You had better invite some friend who has a practical knowledge of Roses to see your plants, and he will probably be able to give you some useful advice. Young growths of Roses are not more liable to injury by frost than is the older wood of the plants, if as much

Cyperus alternifolius variegatus (Idem).—You have overpotted the plant, and employed too rich soil. Gradually withhold water, keeping the soil comparatively dry during the winter; and in spring when fresh growth is commencing divide the plant, potting the portion with variegated leaves in much poorer and very sandy soil.

Hardy Fuchsia in Scotland (Amateur).—It is impossible to name the plant from a spray simply sent in an envelope, and which arrived in a much crushed and withered state. Possibly, however, it is *Fuchsia Riccartoni*, which is very fine in many parts of Scotland. The best and quickest mode of securing flowering plants is by dividing the roots of some healthy young bushes. Failing these you must obtain cuttings. The surest mode of obtaining a stock of young plants is to insert cuttings of the growing shoots in spring in pots of sandy soil, to be plunged in a heated frame or propagating house, and watered and shaded to prevent the foliage flagging. These cuttings strike freely, and if duly potted and eventually planted out soon make floriferous bushes. Cuttings of matured young shoots inserted now in light soil in a cold frame will also strike, but not so readily. These cuttings should be 6 inches in length, and inserted 5 inches deep, only one bud and joint being above the surface of the soil, and they should be protected from frost during the winter.

Wintering Potatoes (Subscriber).—We prefer the Potatoes placed in thin heaps on the level of the ground rather than in excavations or pits below it, but by the former plan greater care is requisite in protecting the tubers from frost. The site should be dry and firm, from 3 to 4 feet wide, the tubers being neatly piled so as to form a sharp ridge or apex. They should be perfectly dry when placed in the heap, not one diseased tuber being admitted. A covering at least 6 inches in thickness of very dry and straight straw should next be given, then with the spade commence digging a foot from the straw all round, and continue that thickness of soil over the entire heap. For ventilation 3-inch drain pipes may be placed on end at intervals of 3 or 4 feet, their ends being just, and only just, above the soil at the apex of the ridge. These ventilators must be securely closed during wet and frosty weather. With thin heaps of perfectly dry sound tubers carefully covered as directed we do not find ventilators necessary in wintering Potatoes. When several tons of Potatoes are stored in very large heaps drain pipes are often conducted quite through the centres of the heaps and out of the tops, and if the tubers are damp when stored the practice is a good one. Such ventilators, however, must have attention, or they do as much harm as good.

Grapes for Succession (Old Subscriber).—We presume you require as many varieties as possible consistent with good quality. In the cooler of the two houses you may try the following:—Four Vines of Black Hamburg, two of Madresfield Court, and one each of Buckland Sweetwater, Foster's Seedling, Dr. Hogg, and Duke of Buccleuch. The last-named is a grand Grape, that many, however, fail to grow well, and in case it should fail with you we advise you to plant it near a Black Hamburg, from which you can train two rods if "the Duke" has to be removed. Take the same precaution, too, in planting Madresfield Court, the berries of which crack seriously in some places, otherwise it is a fine autumn Grape. In the other house plant four Vines of Muscat of Alexandria, two of Lady Downe's, and one each of Mrs. Pince's Muscat, Mrs. Pearson, West's St. Peter's, and Gros Colman. Grown in heat the variety last named is often very good, and when well finished has a noble appearance. We have thus named eleven black and nine white Grapes, all of which are good when well grown; but no varieties are so useful as the Black Hamburg and Muscat of Alexandria. The Vines for permanent growth should not be less than 3 feet 6 inches apart.

Growing Tomatoes in Winter (R. D., Liverpool).—If a start is made at the present time it should, if possible, be with strong established plants in 5 or 6-inch pots and showing their first bunches of bloom. Failing these cuttings may easily be struck in heat, or, as a last resource, seed may be sown at once. Sow thinly and place in heat, and when the seedlings are up keep them as near the glass as possible; prick them off when in rough leaf, the strongest

singly in 5-inch pots, and the weaker in opposite pairs in 6-inch pots, the former destined for the house heated with flues. When about 6 inches high and before becoming much rootbound place the plants singly in 12-inch pots, allowing room for a liberal top-dressing to be given when the first cluster of fruit is set, stand the pots close together and train accordingly. A strong bottom heat is unnecessary, but the nearer the pots are to the flues the quicker will the crops mature, and, what is of great importance, the greater will be the amount of water required at the roots. The pairs may be planted out in the side beds prepared exactly the same as if for Cucumbers, training the plants about 18 inches apart. Afterwards treat them in each house, as far as temperature and moisture at the roots are concerned, similarly to Cucumbers. Suitable soil consists of two parts turfy loam to one of partially decomposed manure, using it rather fine for the seedlings, and roughly broken up for strong established plants. Cuttings may be inserted round the sides of well-drained 6 or 8-inch pots, and afterwards treated similarly to the seedlings. The simplest and most profitable plan is to grow them with one stem only if sturdy, rubbing out all side shoots, and if weak stopping the laterals at the first joint. It is a great mistake to starve the young plants in order to make them fruitful, as they never fairly recover from the effects of it. A fresh batch of plants should be raised early in the new year to replace the old exhausted plants, and from these probably will be taken the most remunerative crops. Frequent top-dressings and plenty of liquid manure are very invigorating to the Tomatoes. Hathaway's Excelsior and Earley's Defiance are two of the most profitable varieties to grow, the latter being the heaviest cropper, but scarcely so attractive in appearance as the former. It may be found necessary to impregnate the blooms during the dull winter months. The width of the house, 70 feet long, intended for Tomato-growing may be about 10 feet, allowing a 3-feet-6-inches pathway through the centre, the rest to be taken up by the pits. A flow and return 4-inch pipe for bottom heat in each pit, and the same on each side of the house for top heat, will be sufficient. The house to be span-roofed, and if possible running from north to south, and might at any time be utilised for Melon and Cucumber-growing. Or if you prefer it the house may be 15 feet wide and span-roofed. This would allow space for a centre pit 6 feet wide to be heated with two flow and one return pipe, to hold four rows of plants 18 inches apart in the rows, to be supported by stakes. There could be a 2-foot pathway round the pit, and the rest of the space to be taken up by the side pits in which to have the plants for fruiting up the roof. Three pipes, two flows and one return, arranged one above the other round the outside of the centre pit, would be sufficient for top heat. One pipe if it could be so arranged would be sufficient bottom heat for the side pits. Such a house ought to grow a great weight of Tomatoes, and it would make a capital plant house at any time. In your district probably a taste for Tomatoes has yet to be created, and therefore it is advisable to proceed somewhat cautiously. At the present time the London markets are over-supplied with them, one salesman alone having had a ton weight to dispose of on one day. These are grown principally in houses devoted to the propagating, bedding, and other plants for the markets in the spring. From March up to June Tomatoes are in great demand in London. If a good market is found for Cucumbers, we advise that half the space at command be given up to them, at all events for the present.

Names of Fruit (T. S.).—1, Belgian Purple; 2, Washington; 3, Drap d'Or; 4, Emerald Drop. (W. D. Paine).—Red Autumn Calville. (Sarnia).—Cumberland Favourite. (Epps box).—Yonr Plum appears to be Lawson's Golden Gage. (F. W. Warren).—The Strawberry is the Royal Hautbois. (Hurst & Son).—1, Hawthornden; 2 and 6, Claygate Pearmain; 5, Dumelow's Seedling. The others we cannot determine in their present green state. (W. H. D., South Wales).—The Pear is Comte de Lamy.

Names of Plants (F. W.).—Clematis tubulosa.



POULTRY, PIGEON, AND BEE CHRONICLE.

SHED ACCOMMODATION FOR CATTLE.

HAVING on previous occasions referred to the best methods of feeding cattle we now propose to avoid that part of the subject in a great measure, in order to give more direct attention to the accommodation whereby the animals may best be cared for under cover, or partially so. There are several modes advocated by men of experience in different parts of the kingdom, and these may be enumerated as box feeding, stall feeding, shed and yard feeding, and covered yard accommodation. It is not easy on many estates for the tenant to obtain such buildings as are really necessary for carrying on the business of the winter feeding of cattle successfully. In various instances the proprietor cannot afford the cost of new erections in connection with farmsteadings. In some cases even strong prejudices interfere and prevent such improvements as are desirable; and it is unfortunately the fact, whatever may be the cause, that although much has been done during the last twenty years towards improving farm buildings generally, yet if we observe the state and condition of them in almost any part of the country there is a serious and lamentable deficiency in the arrangements, which should enable the occupier to carry out his business with advantage whilst engaged in the production of

meat and manure. We will not further enlarge upon the subject, but enter upon the details of our own practice and that of others of experience whose doings may be safely relied on.

We will allude first to boxes as the means of accommodation for stock, and under somewhat varying circumstances. To erect new buildings is very expensive, the cost being more by from 25 to 30 per cent. than it was twenty or thirty years ago; it is well therefore to look over existing buildings carefully to ascertain whether any of them can be altered and improved. When we have found homesteads out of repair we have frequently altered them, and with new and improved internal arrangements have increased the value of the buildings at a cost but little exceeding the cost of necessary repairs. We have, for instance, arranged most convenient boxes for feeding cattle by internal fittings in an old barn, and there are probably few new buildings which offer superior advantages, especially when thatched, for such boxes are cool in summer and warm in winter. A certain amount of warmth or evenness of temperature is of the greatest importance to hairy animals like cattle, for they are unlike sheep, which are kept warm by their woolly covering; besides which it is now well understood that warmth is equivalent in the winter months to so much food, hence the economy obtained by box accommodation. On various occasions we have introduced moveable fittings in the barns, so that corn may be secured in them, which may be thrashed out early enough for the fittings to be replaced, and the boxes occupied by fattening cattle during the winter and spring months. The advantages of this plan are self-evident.

We will now state our plan of arrangements, which is to raise a feeding path 4 feet wide down the middle of the mows of the barn, leading out of the old barn floor, which is utilised for the store of food and its preparation. The boxes being made on each side of the feeding path must, of course, be in size according to the width of the building, 10 feet by 10 feet being a useful size, but we prefer 10 feet by 12 feet for full-grown cattle, besides affording space for pairs of young cattle when required, which may be fed in company, two together. These boxes are fenced entirely after being excavated 18 inches to 2 feet in depth by three larch fir poles of from 4 to 6 inches in diameter, but not sawn, as whole poles only will bear the pressure of the cattle. Three poles are sufficient as a division between each box, placed at about 2 feet apart, and whether these are fixtures or moveable they answer an excellent purpose at very slight cost, and will endure for many years; but the poles should be cut at the time of year when the bark will strip off, or a grub is bred under it which eats into the wood and destroys its durability. In excavating the boxes we have never found it necessary where the soil is firm and dry to use concrete or other materials at the bottom of the boxes. The only care required is to pin-up and secure the foundation of the barn walls. In our method of using the boxes, which we always fill-in at the bottom with about 12 inches of dried earth, peat, or ashes previous to straw being added for littering the cattle.

We will now allude to the erection of new buildings to give box accommodation, as it will be only in some instances that old buildings can be found equal to or well placed for our requirements. We will illustrate our recommendation by taking a double row of boxes with a feeding path between, which may be lengthened or multiplied to any extent that may be necessary, in accordance with the number of cattle to be kept or fattened on the farm; a convenient width of building being provided for a double row of boxes, 10 feet each, with a 5-feet feeding passage between, with a roof of 30 feet span; the boxes may be made 10 feet by 10 feet, or 10 feet by 12 feet, as may be required. The passage down the centre gives room for conveying food and litter to the boxes. The walls supporting the building may be of brick-work with sliding doors, one to every three boxes on either side,

opening so that manure, &c., may be removed conveniently, or earth, &c., filled-in as required. The food store and space for the preparation of cattle food is a separate matter, and will have to be considered in its relation to other buildings on the farm, except only that it should be contiguous to the cattle box range. In the event of these double rows being increased to two or more the passage between the boxes should be widened to 6 feet with a tramway, so that food, litter, &c., may be conveyed by truck to the boxes, and the manure removed in the same way at certain periods. In case of additional rows being added the roof may be upon the ridge-and-furrow principle, supported by iron pillars for all except the outside walls. All roofing may be composed of galvanised corrugated iron, with small elevated ventilators on the top at certain distances. The division of boxes may be of wooden rails, or they may be of hollow round bar iron made in lifting panels (moveable, but keyed-in for use), water being laid on and feeding troughs to rise or fall with the manure in the boxes. Anything beyond our statement is a builder's question.

We now proceed to consider the method of littering the boxes, for after having earth placed 10 or 12 inches deep in the bottom, litter of straw or other materials will be used as cleanliness dictates. About 18 or 20 lbs. of straw will be required daily to each box when no excrement is removed. There is, however, some difference of opinion as to the length of the straw used. Some advocate chaff about 4 or 6 inches in length, or even shorter, as they say it becomes more absorbent; but we dislike the expense of cutting by machinery, and we advise the straw to be used in longer pieces, say from 12 to 15 inches in length. For this purpose we tie the straw into single bond trusses, and use a thatcher's knife to divide it at the bond; this makes the straw fit for use, and it will then bind down firm with an even surface. As a case in point, some thirty years ago, when box-feeding was in its infancy, we were asked by a home farmer belonging to a nobleman's establishment to call and see his box system, which he said he could not think would answer, and wished for our opinion and advice, as his cattle made little or no progress. On inspecting the buildings we found them everything which could be desired, but the boxes were littered with straw chaff, cut nearly short enough to feed the cattle upon, and without any earth for absorbing the urine. Some very fine North Devon oxen were in the boxes, and well fed—indeed, overfed as regards the quantity of cake allowed. It was stated that the oxen had been in the boxes ever since the previous October, the time we visited them being February. We noticed that the bedding reached above the animals' knees, and asked the herdman to take a prong and lift a little of the litter; on doing this a volume of steam ascended immediately. We then explained to the home farmer that it was no wonder the cattle did not thrive living upon such a reeking mass of manure, and that it was lucky the animals had not died; that their ill condition was caused by the bedding being cut so short that it would not bear the weight of the cattle, and at every movement, instead of treading the manure into a firm compact mass, the animals were kneading the litter into a state of fermentation, injurious alike to the health of the cattle and value of the manure, thus showing how easily the best systems of management may be perverted by the omission of one item of practical detail. The utilisation of boxes upon pasture farms, or where straw is scarce, may still be obtained, somewhat upon the plan in use by Mr. Mechi years ago—that is, a sparred floor; but we think it should be made to rise or fall with the accumulation of manure, to prevent a strong current of air under. The best plan is to place dried and screned earth at the bottom of the box, in order to absorb the liquid and solid excrement as it falls through the sparred floor, and by the daily addition of dry earth or ashes, gypsum, &c., swept through the grating the accumulation in the pit will be found to fix the ammonia in the manure, and make the floor healthy for the cattle above it.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—In various districts the harvest is not concluded, therefore the horses will still be employed in carting the corn and pulse. In many cases Beans are still in the field, but the sooner they can be stacked the better, in order that where Wheat is to follow the Bean crop the tillage may be proceeded with without delay. In cultivating Bean stubbles the land should not be ploughed in the ordinary way with a whole furrow, especially where couch grass prevails, but may with more advantage be first rafter-ploughed and then scarified across with the points, not the shares, for in this way the grass, &c., will be combed out and left on the surface to be dealt with by harrows, roller, &c.; but should the land have been clean-ploughed the grass will be turned under and buried, so that it will require more than double labour to work it out; in fact, by such a mode of proceeding it is never properly cleaned the same season. This remark

applies to all autumn cultivation, except the land is quite free from couch grass. We notice that all over the country steam power is in full operation, and this is in every case advisable, for it not only eases the horse labour but completes work for which there is only a limited time at command; for when once the autumn rains commence it seldom happens that cleaning the land can be continued. In the early districts and on the chalk hill farms the drawing-out of manure will be going on, and the spreading and ploughing may follow as soon as possible; for upon these soils, particularly in bleak situations, the Wheat requires to be sown the last week in this or the first week in next month. Upon the heavy land farms also the same work applies, but the seed time may be delayed until the end of October with advantage. With reference to the drilling of Wheat upon heavy land we again advise the home farmer to drill the lines 12 inches apart, otherwise it is in some seasons quite impossible to insure a successful growth of the plant; for after a wet winter, when the land is close and hard on the surface, the plant often looks pale and sickly, in which case if it is not horse-hoed by moving the surface the crop will be deficient, as sickly plants only produce small ears at harvest. We advise the sowing of pedigree corn, and if this costs rather more money less seed is required, especially if it is drilled at the earliest season and at the wide distance. Although from some cause or other the plant may be thin in the spring, yet pedigree grain will make up more deficiencies than the ordinary sorts, because it will always produce a larger ear. Trifolium sowing should now be completed, for although the late sorts may be sown as well as the early variety, yet the seed time must not be deferred. Winter Vetches and winter Oats may now be sown in admixture— $1\frac{1}{2}$ bushel Vetches and half a bushel of Oats. Rye, also, should now be sown if required for early spring food, and the winter seldom kills, only checks, the growth however forward it may be. Winter Beans may now be drilled, and we do not like to trust to them entirely, but recommend the mixture of half a bushel per acre of winter Vetches. This will not interfere with horse or hand hoeing in the spring, but as soon as it is completed the Vetches reach across the lines and dominate the weeds, which otherwise injure the growth of the Beans, besides which both Beans and Vetches seldom suffer from blight in the same season. The feeding off early Turnips has been going on lately with great benefit to the sheep and the land also, and as there is a full crop this year a portion may be carted off for feeding cattle with great advantage. Old Saintfoin leas which are due for ploughing and seeding with another crop, may in a season like the present be pared and burned or autumn-cleaned, and sown either with Wheat or left for seeding with Oats in the spring, after being deeply ploughed. Nearly all the late sorts of Potatoes will now be forward enough to plough out; and we are pleased to say that the disease has not spread lately, nor do we find that those which have grown out are injured as was expected; in fact, the fine weather has so far altered the Potato crop that a full produce is likely to be well secured. We find in some cases that the gross haulm of the Champion variety has been cut off and used for feeding dairy cows this autumn with some advantage. Dairy cows which are used for suckling calves for veal will now have an advantage in some respects compared with those for making butter, cheese, or selling milk, especially when we consider how deficient in many instances is the milking process carried out for want of care and attention by the hand-milkers, and we have yet no milking machine which in our opinion answers the purpose in all respects. Again, in referring to the custom of allowing the cows to go dry for several months before calving, this, together with imperfect milking, is a serious evil, and a large number of animals lose their teats or suffer at calving time with the downfall in the udder. Great injury arises from the cows in such cases making internal fat in various ways, and it is not sufficient, if it could be proved, that cows allowed to go dry for a considerable period give more milk after calving. We have a set-off against this by a large number coming to grief, which is not the case when calves are suckled for veal throughout a lengthened milking period.

BUYING EXHIBITION CHICKENS.

We live in an age of competition, and few of us are now content with our cows, or pigs, or dogs, or poultry unless they have some chance of competing with success against those of our neighbours. The season of poultry shows is coming round, when all breeders seem to take an interest in their well-bred stock. Unfortunately in many this interest is spasmodic and periodical, and only recurs at this time of year; the result is that either their exhibits make a very sorry figure, or that they buy from more painstaking breeders. It is a well-known fact that year after year certain famous and successful exhibitors buy all their exhibition chickens; they are not able or do not care for months to bestow on the little growing birds the attention which alone will secure success afterwards in the show pen.

It always seems to us that there must be something a little unsatisfactory in this systematic purchasing, but those who buy know their own business best, and the liberal prices often given for first-rate young stock are a great encouragement to clever and perhaps poor breeders. Apart, however, from such regular buying for exhibition, many a would-be exhibitor begins by pur-

chasing some prize chickens, or such as are likely to become such. The plan is certainly a good one, for it is a sore tax to patience to begin in the autumn with a breeding pen which perhaps may never produce good chickens, and if it does, whose owner may not be able to choose the best. Many of the greatest and most successful exhibitors have thus begun. We remember how "the Henwife" relates in her personal experience that the beginning of her famous career as an exhibitor was the purchase of a pen of Dorkings in England, which subsequently won honours for her at all the Scotch shows. We know many a fancier who has first been taken with the poultry mania on seeing an exhibition in the early autumn when cockerels and pullets are in the pink of condition and the fullest bloom of plumage. The great shows are still to come, and birds purchased now even at high prices may easily win more than their cost in cups and prizes at the winter shows, and may lay the foundations of a lasting fame in the poultry line for their proud purchasers. To love a good bargain is said to be inherent in human nature; nevertheless, unless we are much mistaken, there is considerable charm in regarding a costly purchase when it turns out well and answers the purpose for which a liberal outlay has been made.

There is much pleasure in the first laurels won in any contest, and certainly we have never known more enthusiastic or pains-taking fanciers than some of those who have begun by a spirited speculation in prize birds. As we have said, interest at once centres on such; they can almost immediately be shown in their new owner's name, and by comparing them with their competitors a novice may soon learn more than he can from pages of descriptions or daily admiring surveys of his home stock. Many of our home-bred Swans turn out in the show pen to be very ordinary Geese; yet so convinced are some fanciers of the superiority of their own feathers that nothing but ocular proof will make them see their deficiencies. Another argument in favour of the purchase of early exhibition chickens is this: Really good birds can in September generally be purchased at moderate prices. The yards of most breeders are crowded, the cockerels begin to quarrel, and often if not parted with some of the best stock has to be sacrificed. Those, too, which are now winners may not win hereafter, and the thought of this naturally weighs with sellers.

This brings us to the point of our subject—viz., to some hints on the selection of young show stock. To begin with, precocious birds should be avoided; we mean such cockerels and pullets as are often seen, still not nearly full grown, yet with all their full adult plumage and highly developed combs. Such birds have been forced on, and will grow little more; an inexperienced judge is often taken with their prettiness and condition, and even the best judges sometimes cannot help putting them in prominent positions when all other competitors are still combless chickens. Again, purchasers should look out for any signs of severe moults. Early chickens which have quickly developed the plumage of cocks and hens, especially pullets which have laid, often go into deep moult, which unfits them for exhibition through the greater part of the autumn. A practised eye will easily detect such drawbacks, but a beginner may not find it easy to do so, and, indeed, no one can be certain that any young birds will remain continuously in good plumage. Moults come on suddenly and capriciously, and depend much upon temperature; the overheating of a show room will sometimes throw chickens into the moult.

We advise all beginners to get introduced to some well-known fancier of the breed he is inclined to take up, and to follow his advice in the selection of birds to start with. There seems a general bond of sympathy between true fanciers. We must say that we have known many who, though total strangers at first, have done all in their power to assist a promising novice in poultry or Pigeon matters. If it is impossible to get advice on the purchase of birds at a show, which is generally preferable, we advise a young fancier to write directly to some exhibitor of repute, state his requirements and about the price he can give, and trust to receiving his money's worth in the shape of good birds. When this course is straightforwardly pursued we believe that instances of cheating are very rare. Too often a beginner reads up a list of points in some poultry book, looks out for the advertisements of first-prize cup birds, answers one put in by some unknown individual, who has probably never won a prize at all, or if he has, only at some fifth-rate village show, describes the perfect and ideal bird, and in return receives a reply that he can have such a one for 15s. or £1. Of course some worthless creature arrives, the buyer is disgusted, complains that fanciers are rogues, and often buys no more. If more confidence were placed in really well-known and great breeders, and if the ignorant really confessed their ignorance, and instead of pretending to expect perfection would ask the description of birds at a

certain price, their merits and their imperfections, we believe that much disappointment would be obviated, and that many a useful young bird both for breeding and exhibition might at this time of year be picked up at far less than the exorbitant prices which winning specimens always command by the time of the great autumn shows.—C.

VARIETIES.

GOAT SHOW.—An Exhibition of Goats will open this day (Thursday) at the Alexandra Palace, and remain open for a week. About a hundred specimens have been entered, the exhibitors including the Baroness Burdett Coutts, Lady Pigot, and many members of the British Goat Society, whose Honorary Secretary, Mr. H. S. Holmes Pegler, will act as Judge.

— FIELD POTATOES IN SCOTLAND.—A correspondent communicates the following on this important crop:—"Regents and Victorias will be very excellent. The disease has been stopped by the extremely dry weather, but I have seen mildew very bad indeed. With regard to the Champion there will be some disappointment this season. Not only will the smallness of the crop have to be reckoned on, but owing to the abundant crops of the above-named superior Potatoes, the stocks of Champions will have to be sold at a low price. I have been for a few weeks past doing a kind of voluntary penance testing the quality of new Potatoes, and what a pleasure it is to get back again to old-fashioned sorts!"

— THE HARVEST AND CORN VALUES.—That the harvest is a good one may be estimated by the price of British Wheat last week, which was 42s. 2d. per quarter. This was several shillings per quarter lower than it has been on an average of several years past. The average price of Oats last week was 21s. 8d., which was much below the average price during the corresponding weeks of several preceding years. The same may be said of Barley.

— AGRICULTURAL EDUCATION IN ITALY.—Arrangements are being made by the Italian Ministers of Commerce and Agriculture for the institution of "Ambulatory Agrarian Schools," after the pattern of those which have effected such good results in parts of Germany. A number of professors of the sciences practically allied with agriculture will lecture and hold classes in the principal towns of these provinces during a few months of each year, in order to instruct the country folk in the most rational methods of cultivating their soil. The Ministry has also determined to erect at once a number of specialist agricultural schools at Avelino, for general agriculture; a second in Florence for pomology and horticulture; and a third in Bari for Olive culture. Similar schools are planned at a later date for Alba, Modena, Catania, Brindisi, Alghiero, and Ferrara.

— FROM HARVEST TO HARVEST.—In the twelve months ending August 31st, 1880, the import of Wheat into the United Kingdom reached 59,815,691 cwt., equal to 13,803,621 qrs.; and when we add to this the import of Wheat flour—which amounted to 10,431,726 cwt., or 2,980,493 qrs.—we find that we received from abroad no fewer than 70,247,417 cwt., or 16,784,114 qrs., of Wheat and Wheat flour. In the twelvemonth ending August 31st, 1878, the amount was 62,255,125 cwt., or 14,808,966 qrs.; and in the twelvemonth ending August 31st, 1879, it was 60,849,823 cwt., or 14,543,607 qrs. Our other imports of corn in the twelvemonth ending August 31st, 1880, comprised 31,870,896 cwt., or 7,436,542 qrs., of Indian Corn or Maize; 12,382,665 cwt., or 3,467,147 qrs., of Barley; the very large quantity of 15,622,912 cwt., or 5,681,059 qrs., of Oats; 2,002,772 cwt., or 445,061 qrs., of Peas; and 2,754,518 cwt., or 642,721 qrs., of Beans. The grand totals are as follows:—In 1877-78 the twelvemonth's import thus classed under the title of "corn" amounted to 131,430,348 cwt., or 33,858,689 qrs.; in 1878-79 it was 124,866,538 cwt., or 31,510,900 qrs.; and in 1879-80 it reached 134,881,180 cwt., or 34,453,644 qrs. In the last of these three periods, compared with the first of the three, the increase in Wheat and Oats was nearly counterbalanced by a large decrease in Indian Corn and in Barley, so that the grand totals show no very great difference.—(*Times*.)

— THE EGG TRADE IN AMERICA.—This is referred to as follows by Messrs. Read & Pell in their report on American farming:—Eggs

come to market wholesale in New York in barrels containing seventy dozen, priced at 15 cents per dozen. They have been preserved for several months in refrigerators, and are delivered from Toledo [in Ohio. One dealer cleared £3000 by a rise in prices in 1878. He bought at 6 cents a dozen, and sold at from 22 to 25 cents. Between June and October they are packed in Oats, which in New York are worth the cost price to the packer in the west. The farmer is said to make more by eggs than by any other produce. They come over 1500 miles from Omaha on the Missouri. The supply after the abolition of slavery became more abundant, as the free blacks in the south are poultry keepers. In 1874 eggs were sold in New York in January at 40 cents the dozen, before the month was out they fell to 12 to 15 cents. The home consumption in New York has materially increased.

— TOP-DRESSING EXPERIMENTS UPON GRASS LAND.—The following experiments have been conducted upon the Rotherfield estate in Hampshire, and as they show conclusively the value of cheap natural fertilisers, the result cannot fail to be interesting and useful at a period when money is by no means plentiful. The soil was a porous self-drained clay, contained little or no lime, and the dressings were sown on March 17th, and the plots cut and weighed on August 16th, 1879. Plots one-tenth of an acre. No. 1, 150 bushels of eut straw per acre; 2, nothing, do.; 3, 5 cwt. of salt, do.; 4, 5 cwt. of gypsum, do.; 5, 5 cwt. of kainit, do. The costs per acre of the above dressings were as follows:—No. 1 (about) 10s.; No. 3, 6s. 8d.; No. 4, 6s. 3d.; No. 5, 8s. to 10s. The amount of grass attributable to the various dressings was as follows:—No. 1, straw, 255 lbs. in excess of plot unmanured; No. 3, salt, 265 lbs. do.; No. 4, gypsum, 643 lbs., do.; No. 5, kainit, 548 lbs., do. Taking No. 4, then, we find for an outlay of 6s. 3d. we obtain 6430 lbs., or nearly 3 tons of grass—a most extraordinary result. Referring to some top-dressing experiments conducted on the same estate in 1875, the results of which were duly published in the *Agricultural Gazette*, we find that Peruvian guano, at a cost of £3 per acre, gave a return in grass of 7 cwt. per plot, or 3½ tons per acre. Compare this result with the quantity derived from an outlay of 6s. 3d., and the value of the experiment is at once apparent. The dressing, also, being especially adapted to the requirements of the finer grasses and Clovers, gives an indirect value by no means to be overlooked. The above plots were weighed again on August 2nd, 1880, with the following results:—No. 1, straw, 78 lbs. in excess of plot unmanured; No. 3, salt, 49 lbs. less than plot, do.; No. 4, gypsum, 111 lbs. in excess, do.; No. 5, kainit, 157 lbs. in excess, do. The result shows the effect of the dressings seventeen months after application.—C. E. CURTIS (in the *Agricultural Gazette*).

— HEALTHY AND PROFITABLE FOWLS.—Dr. A. S. Heath, in a paper read before the Farmers' Club, New York city, said:—"The reason why eight or ten fowls about the house of the mechanic, the gardener, or the labourer are more profitable is because of better feeding and less crowding, better sanitary conditions of yard and roost. Extent of grassy range for fowls is more important than provided food, for here they obtain not only air food but also insect food, which is the essential nitrogenous element necessary for egg-production. Equally important to extensive grass range are clean and airy roosting houses or sheds. The houses should have doors on the ground, to be left open in the summer, and at least two side slat ventilators should be provided. Running water is a most desirable and easy means of water supply. With this water supply without care or labour the food supply may be equally convenient and labour-saving. Drive four stakes into the ground so as to leave them 2 feet above the surface and 6 inches apart, and upon these nail two boards so as to make a table large enough to permit the fowls a footing around a nail keg in the centre, covered by a wide board and weighted by a large flat stone. This keg may be filled with eorn or cracked corn, and having three or four augur holes near the bottom it is self-feeding. What runs out is lodged upon the table. It is kept clean and dry, and secure from rats and other vermin. This is a cheap, simple, and labour-saving manner of keeping fowls, and it will be found a most profitable plan. This grass range may be a small pasture or a large cow-yard. Fowls should never be allowed in stables or carriage houses. Their houses should be fumigated by burning half a pound of sulphur every spring and fall, while the fowls are

shut out for the day, and be well aired before roosting time. Not more than twenty or thirty fowls should be allowed to roost in one house, but two or more of these houses may be erected in the pasture or range, provided it is large enough. In this case the feeding place may be the same, only a barrel may be used instead of a keg to save trouble. The largest liberty and the most generous feeding, with an observance of cleanliness, will secure the best yield of eggs and the largest number of healthy fowls. This is the way to secure the largest profits of the poultry-yard."

HONEY HARVEST OF 1880.

THE accounts which are coming in from various parts of the country giving reports of the honey harvest are various. In some counties hardly any honey seems to have been taken. The mid-land counties seem to have suffered worst in every way, owing to the deluges of rain following upon the constantly recurring thunderstorms of June and July. Of course this weather must have been as disastrous to bees as to the farmer in respect of his eorn and hay crops.

Here in the south-west of England I am thankful to say we have a very different tale to tell. Our dairy farmers are once more in good heart, and there is every prospect of a very good crop of every kind of produce save only of Apples. Our honey harvest this year in Somerset, Wilts, and Devon, so far as it has come under our observation, has been exceptionally good. My own apiary has done extremely well considering the difficulties our bees have to contend with in a very open and exposed country with no great floral pabulum to depend upon. On the whole there has been a fairly continuous supply of honey, dating from the middle of May. We have not to chronicle a period of starvation followed by an unusual glut of honey, as was the case in 1878, and in a less degree in the majority of fairly good years before that date. Indeed I must go back to 1861 for anything like the honey harvest we have had this year. The honey, too, throughout has been remarkably rich and glutinous. I have seen none of that watery honey which we usually have in large quantity towards the end of July and at the beginning of August, which alone can be fairly called "erude" honey. It is indeed so thick that the combs will not sling well, in consequence of which we have had to return combs to the hives containing a good deal of splendid honey.

To the absence of glut in the inflow of honey I attribute the fact that so little perfectly pure honeycomb has been harvested here. There has been much breeding going on and too much pollen stored even in supers twice storified; but the run honey, which has been so much the greater in quantity, is worth twice as much as in ordinary years. Being still in the midst of the harvesting process, I cannot exactly tell the nett total of serviceable honey and honeycomb, but I do not think it will be much short of 250 lbs. The demand for it being great I am able to sell a good deal, and consider that the value of it to me fully reaches £13, our selling price being 1s. 2d. per lb. for honeycomb, and 1s. per lb. for run honey. This I consider the nett profit of the year, as the swarms I sold in June will more than pay for the outlay incurred last autumn and during the following spring in feeding the eleven colonies which survived the winter. Exclusive of about 10 lbs. of honey furnished by swarms of the year the harvest of honey given above has been supplied by eight stocks, no hive yielding over 50 lbs.; of course there has been no brimstoning, and the apiary throughout is in good health and strength with plenty of food in most of them. In about a fortnight I shall commence gentle and continuous feeding for a month, so as to induce breeding during the last harvest of the year which comes with the Ivy blossom.

The result of the year's bee-keeping above given surely teaches the lesson *Nil desperandum*, and should encourage all to take the utmost pains and to spare no expense in feeding up their stocks of bees in good time during the warm days and nights of mid-autumn. Instead of all dying during the winter, as they certainly would have done, and left me in beggary as an apiarian, my stocks of bees now number twelve all in good health and full of promise, worth at least 30s. apiece, in all £18, and the profit of the year 13 lbs. additional, so that I am fully £31 better off than I should have been if I had despaired or neglected my bees as did so many of my hapless neighbours.—B. & W.

DIAGRAMS OF BEES AT SOUTH KENSINGTON.

In your impression of the 12th ult., page 154, allusion is made to an award of a bronze medal to Abbott Brothers for exhibiting a set of diagrams, said to be "now perfectly well known, and in

which Abbott Brothers deal," and in the same paragraph the Judges are certainly not complimented on their taste in making the award. In reference thereto, may I be allowed to state that the firm I represent do not deal in the said diagrams, that they never have had or seen other than the one set alluded to, and that they have never offered them for sale? They were presented to me in 1877 by M. Rothschild of Paris, and so far from their being "perfectly well known," I have never heard of or seen anything like them except in the diagrams for which Mr. Cheshire was awarded a silver medal at South Kensington in 1879, and which have been since republished by the British Bee-keepers' Association.—C. N. ABBOTT, *Fairlawn, Southall*.

HOW TO ITALIANISE BLACK BEES.

THE following plan of the Rev. J. W. M'Niel, which we cite from the "American Bee Journal," may perhaps answer the above question, which has been submitted to us by Mrs. Elvey:—"Whenever anyone desires to italianise an apiary it is necessary to start right. The important matter first is to be certain to procure a pure Italian queen. When obtained and introduced into a hive, of which I will hereafter give my plan, then the work of raising queens from her may soon be commenced. The frame hive of some make is necessary in this work. Of whatever kind used, be certain to have all the frames of the same size; this will obviate a great deal of trouble and loss of time, not only in the work of raising queens, but also in the general management of bees. After all the eggs of the black queen in the hive into which the Italian queen has been introduced have hatched and been capped in their cells, then the work of raising queens may be commenced, provided the Italian queen has been laying. This being sure, my plan is to remove a hive from its stand, placing an empty one in its stead, and in this place a frame of comb with eggs in it from the Italian queen, then return to the hive, having been removed from its old stand, and blow a strong draught of smoke into it; many of the bees will return to their old stand, and those, together with others out foraging, will enter this, making a nucleus—if not strong, still continue to agitate the bees or the removed hive until the nucleus is a good-sized colony.

"This nucleus will in a few days commence queen cells, making from three to fifteen. These must be closely watched, and from the day the first is capped allow only six or seven days to pass before all the queen cells except one are carefully cut out, and place one in each of the queenless nuclei. These nuclei may have been previously prepared by destroying a queen and dividing up the hive. Be certain that the nuclei have neither queens nor queen cells. In these introduce the queen cells into the combs into about the same position as those made by the bees. These queen cells will soon hatch, and after the queens are fertilised they can be introduced into hives of the common bee.

"It may be well to remark that the safest plan I have tried is to cage the young queens, destroy the black queens into whose hives it is desired to introduce the young queens. Suspend the cages about the centre of the hive, having placed a small piece of comb in the bottom with honey in the cells, upon which the queens can feed themselves. After the cages remain there about forty-eight hours take them out and cork them with a small piece of thin honeycomb, and suspend them again in the hives. The bees of the hive will encage the queens by removing the comb from the mouth of the cages. After suspending the cages thus the second time, do not disturb the hives in less than three or four days; after which the hives may be opened, and, if the queens are alive, they can soon be found among the black bees, for the reason the Italian queens are of a bright golden colour. By the above plan anyone may in a short time displace all their black queens and place in their stead the Italian."

OUR LETTER BOX.

Duck Management (R. T.).—The food of Ducks and ducklings, and their digestive powers, seem to be of that happy character, so easy to find and so effectual when found, that we seldom expect to have much to say about them. We do not believe much in their weakness, unless they are improperly lodged or fed. No lodging is fit for them that has a brick, stone, or wooden floor. Either will produce cramp, and that will cause the staggering you speak of. Dry food is not good for them, nor is scrupulously clean food desirable. If they are kept tolerably clean, then add to their food a sod of grass put in the water. Give them Oats, oatmeal, Lettuces, and if you want them to grow and fatten quickly any scraps of raw meat you may have.

Chickens Drooping (Devon).—You chickens are suffering from chill, or from roup, or from some weakness. When they are first attacked they should be freely fed with bread steeped in strong ale; afterwards, both for cure and prevention, put citrate of iron or camphor in their water. The use of these two remedies will be found to save trouble, anxiety, and loss. Your fowls must have a grass run, and should be fed principally on soft food. Change of air, food, water, and above all of roosting, will often affect poultry.

Diarrhoea in Pigeons (T. S.).—Give them three or four pieces of whiten- ing or chalk daily, each about the size of a pea, and feed them on old beans until the diarrhoea ceases.

Food for Pigeons (N. O.).—Tares, if old, are perhaps the best food for Pigeons. As to linseed, it has been found in Germany that after the linseed harvest Pigeons are frequently ill, and die of diarrhoea; so that we would advise you to give it with a sparing hand, and add a few handfuls of common dry rice to your compound of tares, linseed, Peas, and Barley.

Bee Flowers (H.).—White Clover, Saintfoin, Trifolium incarnatum, Buck- wheat, Heath, Lime, fruit trees of all kinds, Raspberry, Gooseberry, and Currant; Laurustinus, Borage, Mignouette, and Nepeta Mussinii.

Driving and Uniting Bees (Busy).—Your super, which is two-thirds filled with combs and honey, should be taken from the hive at once, as the honey season is over. After the super has been loosened from the hive drive the bees down into the hive by smoke applied at the top. If some few bees remain amongst the combs of the super, take it into an attic or cellar of the house with an open window, in order to let the bees fly out and home. If the supers were left in the garden, the bees flying about would soon find it and take all the honey. The books you have been reading contain instructions for driving. If your hives are not of equal width so that they cannot fit and rest on one another, roll a tablecloth firmly round the rim of the smaller hive and thus overcome your difficulty. First drive the bees which are to be surrendered into an empty hive, then feed the bees of the hive to receive them, and in about an hour afterwards place the empty hive (with the driven bees) on its crown and lift the full hive on to it. All the bees will run up without driving, but will run faster if driven. This process of driving and uniting is a very simple affair. All beginners like yourself lack courage and self-confidence. After you have done it once your success will qualify you for more difficult work in the apiary. After the bees have run up lift the hive on to its board. You are quite right in thinking that the seasons have of late been unfavourable for honey-gathering.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1880. Sept.		Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sun.	5	30.072	70.8	65.1	S.W.	65.8	77.8	64.2	124.2	60.0	—	
Mon.	6	30.164	61.5	58.7	W.	65.2	74.3	53.0	116.4	48.6	0.090	
Tues.	7	30.011	62.4	56.7	N.	64.3	71.9	53.8	120.0	49.9	—	
Wed.	8	30.448	59.8	55.3	N.	62.8	68.6	51.2	99.0	43.9	0.010	
Thurs.	9	29.877	61.6	58.2	E.	62.0	65.9	55.2	81.3	51.7	—	
Friday	10	29.760	65.8	62.0	E.	61.8	79.8	55.1	127.4	50.4	—	
Satur.	11	29.683	67.2	62.8	E.	62.7	73.5	60.3	113.0	55.4	1.333	
Means.		29.945	64.2	59.8		63.5	73.1	56.0	111.6	51.4	1.433	

REMARKS.

- 5th.—Morning fine with sunshine; afternoon cloudy; warm day and windy.
6th.—Fine with sunshine for short time before noon; dull, very cloudy after- noon with rain, which gradually increased from 6 P.M.
7th.—Dull morning; afternoon very fine and bright; starlight evening.
8th.—Fair pleasant day, but good deal of cloud.
9th.—Cool fair day, no sunshine.
10th.—Foggy in early morning; fine bright hot day; strong breeze.
11th.—Dull close morning; rain at 2.30 P.M., but not heavy until 4 P.M., from which time it fell at the rate of more than a tenth of an inch per hour until 1.30 A.M. of the 12th.

The absolutely rainless period of twenty-eight consecutive days ended on the afternoon of the 6th, but the amount was unimportant until Saturday 11th, when the heaviest fall of the present year occurred.—G. J. SYMONS.

COVENT GARDEN MARKET.—SEPTEMBER 15.

WE are still fairly supplied with Apples and Plums, both being sufficient for the demand, and prices firmer. Good Peaches are in demand, while Grapes remain the same as last week. Kent Cobs and Filberts are short.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½ sieve	2	6 to 4	6	Melons	each	2	0 to 4	0
Apricots.....	box	0	0	0	Nectarines....	dozen	2	0	8
Cherries.....	½ lb.	0	0	0	Oranges	½ 100	0	0	0
Chestnuts.....	bushel	12	0	16	Peaches	dozen	3	0	10
Figs.....	dozen	0	6	1	Pears, kitchen ..	dozen	0	0	0
Filberts.....	½ lb.	1	6	1	dessert	dozen	2	0	3
Cobs.....	½ lb.	1	6	1	Pine Apples ...	½ lb.	1	0	3
Gooseberries ..	½ sieve	0	0	0	Plums	½ sieve	2	6	4
Grapes	½ lb.	0	9	3	Walnuts	bushel	0	0	0
Lemons.....	½ 100	12	0	18	ditto	½ 100	0	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms	dozen	1	0 to 1	6
Asparagus.....	bundle	0	0	0	Mustard & Cress ..	punnet	0	2	0
Beans, Kidney	½ lb.	0	0	0	Onions	bushel	3	6	5
Beet, Red.....	dozen	1	0	2	pickling	quart	0	0	9
Broccoli	bundle	0	9	1	Parsley..... doz.	bunches	6	0	0
Brussels Sprouts..	½ sieve	0	0	0	Parsnips	dozen	1	0	2
Cabbage.....	dozen	0	6	1	Peas	quart	0	9	1
Carrots.....	bunch	0	4	0	Potatoes.....	bushel	3	9	4
Capsicums.....	½ 100	1	6	2	Kidney.....	bushel	4	0	0
Cauliflowers.....	dozen	0	0	3	Radishes..... doz.	bunches	1	6	2
Celery	bundle	1	6	2	Rhubarb.....	bundle	0	4	0
Coleworts..... doz.	bunches	2	0	4	Salsafy.....	bundle	1	0	0
Cucumbers.....	each	0	4	0	Scorzonera	bundle	1	6	0
Endive.....	dozen	1	0	2	Seakale	basket	0	0	0
Fennel.....	bunch	0	3	0	Shallots.....	½ lb.	0	3	0
Garlic	½ lb.	0	6	0	Spinach.....	bushel	3	0	0
Herbs	bunch	0	2	0	Turnips.....	bunch	0	4	0
Leeks.....	bunch	0	0	4	Vegetable Marrows	each	0	2	0



23rd	TH	International Potato Show at the Crystal Palace (concluding day).
24th	F	
25th	S	
26th	SUN	
27th	M	Sale of Bulbs at Mr. Stevens' Rooms, King Street, Covent Garden.
28th	TU	
29th	W	Hemel Hempstead Poultry Show.

JUDGES AND JUDGING AT HORTICULTURAL SHOWS.

As our neighbours the French observe, "It goes without saying," that the success of exhibitions depends in a great degree on the judging. However good an exhibition may be, and however able and assiduous the officials of the show, if any serious mistakes are made in the awards from time to time exhibitors become alienated and gradually drop off, and without exhibitors it again "goes without saying" there can be no show. The committees of horticultural societies are generally aware of the importance of securing good judges; but as not a few of those committees are composed of gentlemen who have necessarily but little practical acquaintance with the art that they so laudably endeavour to promote, they do not always succeed in securing the best men obtainable for adjudicating in the several departments of an exhibition. Occasionally judges are appointed, not because they possess special qualifications for the office, but because they are fortunate in being employed by some grandee who is also a supporter of the society. Such gardeners may be excellent judges, but, on the contrary, they may not possess the necessary qualifications, and there is always more or less risk of disappointment ensuing in some form or other when local men are appointed to adjudicate at provincial shows. All good gardeners are not good judges. Some do not possess the faculty of a quick and accurate comparison of the merits and failings of the several exhibits before them; others of a cautious frame of mind lack the virtue of decision and become nervous, then sometimes decide wrongly; others, again, have a great amount of self-assurance, and jump at conclusions—"knock off a show," as they say, "in no time," as if this were a proof of their competency. But even such men are not infallible.

Then, again, when good judges are secured they are not always judiciously apportioned. There are some, but not many, judges who are equally conversant with the merits of specimen plants, Orchids, florists' flowers, fruit, and vegetables. Such men may safely be sent into any department of a show. Others are specially competent, and these are the majority, in one particular branch. A gardener may be a first-rate judge of fruit, but quite "at sea" amongst specimen plants and florists' flowers. Another may be a thoroughly good plant judge, and quite out of his element amongst fruit. This is an important matter, and should always be remembered when the judges are being apportioned to the different sections of a show. I have seen three judges "doing" the specimen plants,

and two of them admitting they knew nothing about them, and have also seen fruit misjudged by first-rate plantsmen.

Some men in the horticultural world appear to be very fond of judging, or of the guinea or two at the end of it. They, indeed, offer their services and seek appointments. Such judges do not hesitate to act in any department, and they may give satisfaction; still it is to be remembered that experienced and competent judges have no need to "seek for work," as they have more applications for their services than they can entertain.

It is the rule of some societies to have fresh judges at every show, while other societies employ the same men for, it may be, twenty consecutive years. As to this, it may be said that every plan that works well is good; but it cannot be denied that a great number of exhibitors are often heard expressing an opinion when they meet the same judges at the same show for half a lifetime, that "a change would do no harm." Changing the men every year may work well for a time, but the course is not the safest; for it follows that a very good man may be succeeded by one less competent, and superior judges are not so plentiful as to enable this system to be carried out indefinitely. As in other matters, the safest course is probably the mean between two extremes, and old hands should occasionally stand aside to afford younger men an opportunity of exercising the functions of censors. Two old well-proved judges to one new one is always a safe course, and a young or fresh man is being brought up to the efficient discharge of an important duty.

In the distribution of judges different customs prevail. At one show a certain number of classes are allotted to one judge who has to perform his duties alone; in other cases the judges work in pairs; in others, again, in triplets. Judging is necessarily costly when a number of adjudicators have to travel from two hundred to three hundred miles to perform their duties, and it is possibly thought that by the single-judge system there is a saving of expense. It is a question if this is really so. There are very few judges indeed who like to act alone, and the majority of them are twice as long in adjudicating on a given number of classes as two men would be. A single judge having no one to share his responsibility naturally hesitates long over every class for fear of making a mistake, and, be it understood, this very hesitation not infrequently leads to a mistaken verdict. I have seen one of the very best fruit judges in England in a most uncomfortable position, and in a state of perspiration when acting alone; but with a coadjutor the work would have been easy to him. In this case, as he afterwards admitted, he made one mistake, and said the judging would have been done in half the time if he had had an assistant. No doubt the majority of judges will coincide in this opinion.

The other extreme of judging in triplets is founded on the principle that a majority must decide the points at issue, and with two judges only, and their views being different on any exhibit before them, there can be no majority and no decision. As a matter of fact, however, the verdicts are usually given with unanimity, and the concurrence of two good judges is quite sufficient for all practical purposes. Where cost is no object let three judges be appointed by all means in every section of a show, but generally there is a decided waste of power by this plan.

Judging in pairs is for all practical purposes sufficient, and

is in the end economical, but some provision is necessary in case of a diversity of opinion between the two censors. This is very easily provided, and it ought to be done in a systematic manner. Each pair of judges should have the name of a referee written on their schedule—one of the judges in another class, whose appointment as referee in certain classes is also written on his own schedule. In case of two judges failing to agree they know directly where to send for the casting vote; the referee leaves his coadjutor for a few moments, brings "a fresh pair of eyes" to bear on the points in dispute, and has seldom any difficulty in giving his decision, while his colleague experiences no inconvenience by being temporarily left to pursue his duties alone for five minutes. This plan works well, and is equal to three judges in a section, for in practice the referee is seldom in request, in nine cases out of ten the two judges agreeing in the verdict.

It is a great mistake to unduly limit the number of judges, or, in other words, to overwork them. When the awards have to be made in a hurried and bustling manner mistakes are certain to occur, however competent the adjudicators may be. One of the greatest of all mistakes bearing immediately on this subject is the delay (which betokens loose and bad management) which occurs in staging the exhibits. According to the rules the tents have to be cleared for the judges say at 10.30 A.M. They enter the tent then, find all in confusion, have to "hang about" for an hour or two, and commence their duties an hour before the public are admitted, and complete them perhaps two hours after. Of all the inconveniences, even annoyances, pertaining to judging none is so great as adjudicating in a crowd of visitors. The work cannot be properly done then. The judges can neither satisfy themselves, the committee, nor exhibitors. No one should be in the tent with the judges and their officials, except the representatives of the press. These latter are always admitted, except under the officious management at some obscure local shows that are not really worth reporting.

A word may be said on the manner of judging. As a rule the point system is by far the best, but it is not always necessary to bring it into requisition. The value of some competing collections is apparent at a glance, while others require the closest and most skilled examination. Good judges, it may be observed, never like to give, say, equal first prizes to two competitors. The most competent of adjudicators will spend an hour over two collections in an important class rather than give an "equal first;" while others less competent find it an easy way of solving a difficulty. Still, occasionally the best of judges have no other course open to them consistently with doing justice to both rivals for their verdict. It is in such cases as these when point judging is of value. Take, say, two collections of fruit so close in point of merit that by comparing dish with dish it is a mere matter of chance which "has it;" but have recourse to careful point judging, and the question is reduced to a sum in addition, for the judges have agreed after a close examination of every dish the number of points to which it is entitled; but before they commence they must determine the standard of excellence, by an ideal number of points, of every kind of fruit exhibited. This subject was alluded to by Mr. Witherspoon in the autumn of 1879, and at an autumn exhibition he gave as points allowed—for a Pine ten; Grapes eight; Peaches, Nectarines, Melons, and Figs six each; Apricots and Plums four each; Pears, Strawberries, and Cherries three each; and Apples two. This will do very well, for any given number is not essential, but Pears are worthy of more than three points, and Apples more than two; and the matter would be simplified by allowing Pears four, and Apples three points. This system should also be applied to vegetable collections, and if carefully carried out few errors could occur, while the judges could afford to watch with equanimity the grumblings of outsiders.

Point judging is still more important in the large cut flower classes, say of Roses and Chrysanthemums. It is simply impossible to arrive at a correct verdict in determining the merits, say of very close stands of forty-eight Roses and thirty-six Chrysanthemums, without estimating each bloom by points. I have seen judges after much haphazard comparison of row with row and bloom with bloom decide on their verdict, but

before formally giving it bring the point test into operation, and this has quite upset their preconceived verdict. If they had adopted it at first instead of last they would have saved much time, and understanding the merits of every bloom their decision could not on any good ground be called in question.

I am tempted to dwell on the idiosyncracies of judges, for these are well known and are the cause of some amusement amongst onlookers. There is the noisy judge, the grave judge, the fussy judge, and the sober judge. The noisy judge gives utterance to all his thoughts, and the changes of his mind are floating audibly all over the tent. He is generally an old hand at the work, and looks upon it as a matter-of-fact duty to be got through in the best manner, not thinking of himself at all. The grave judge, on the contrary, appears to be impressed with the solemnity of his position, and acts in the most conscientious manner as if a nation were hanging on his verdict. The fussy judge always attracts notice; he cannot commence without an assistant at his elbow, then his marching to and fro, ordering people out of the way, and "attitudinising," is delicious to witness. The sober judge is in direct contrast; he is neither grave nor gay, but keeps quietly plodding on in a steady systematic manner, keeping his thoughts to himself, giving his verdict firmly, and apparently not troubling himself about grumblers after he has done his duty, which all good judges seek to do.

There is just one other point—good judges have laboured long to make themselves efficient; their services are in great request, they travel oft and far, and according to their ability endeavour to do justice to all, even at the risk of not receiving justice themselves, for in not a few instances their fees are too small, and sometimes are not paid with the promptitude that is desirable. This, however, is not the rule, but so long as exceptions exist the system is faulty. It is always wise to obtain good judges and adequately remunerate them for their time and skill. Four first-rate men will do more work, and do it better, than twice the number of less experience and who have not given proof of possessing special qualifications for the work.

The exhibiting season is approaching its close, and the season for the consideration of future campaigns and their management will succeed. As one element that always demands attention is the judges and judging, these remarks on the subject may, therefore, not be inopportune; they are the outcome of much experience, and are written by—A VETERAN.

AUTUMN AND WINTER-FLOWERING PLANTS.

THIS season, especially the sunny weather of the past six weeks, has enabled cultivators of autumn and winter-flowering plants to have the wood thoroughly matured. Only moderate success can be expected in wet, cold, sunless seasons unless artificial heat is employed to supply the deficiency, and that is only a poor substitute for solar heat in the declining days of autumn. Those who practise giving heat to many plants that have to produce early flowers and assist them in the early season to make their growth, and then place them outside to thoroughly ripen and set their buds, reap advantages which cannot be produced by fire heat in autumn. This applies to early-flowering Rhododendrons, Deutzias, Prunuses, Azaleas of the Indica and Ghent types, as well as to Camellias and many others. To thoroughly prove the advantage of assisting plants to make an early growth, those who do not practise it can take a number of Deutzias and divide them into two batches, the one to be grown under the influence of heat, and the other plunged outside in pots, or planted out. The former will be a fine hazel colour and the foliage entirely gone, while the others will be green and only lose their leaves when compelled to do so after sharp frosts. It would quickly be seen which would produce their flower buds early when required to do so.

Cold nights are approaching, and it will not be safe much longer to leave such plants as Poinsettias, Euphorbias, and Plumbagos in cold frames, as if allowed to remain until checked much damage will be done, and the foliage of the Poinsettias will turn prematurely yellow and fall off. Plants of the above-named that were propagated late should be housed at once where a little assistance by fire heat can be given at night and during dull sunless days. Care must be taken not to excite the plants into fresh growth, but a rather dry atmosphere must be maintained, ventilating abundantly when favourable in order to bring growth to a standstill. Celosias will now be showing their plumes, and

must be assisted with a little fire heat at night, and sufficient ventilation to keep them dwarf and as stocky as possible. These useful plants are not grown for winter decoration nearly so much as they deserve; they will last fully four months for decoration in the conservatory during winter, and are invaluable for cutting and for associating with groups of plants for room decoration.

Epiphyllums are amongst the most lovely of winter-flowering plants, and where a succession of choice flowers are required they should be grown in numbers. They are of easy culture, and with ordinary care small plants can be flowered as well as those of larger size. They require heat and moisture while growing. Frequently they are insufficiently supplied with water, and have a hard struggle to exist. If still in heat and growth is completed, a cool temperature is of the greatest importance to harden their growth and ensure a regular head of bloom. At this stage a drier condition of the atmosphere and the soil is essential, but when required to bloom they must be introduced into stove heat. *Calanthes* and *Dendrobium nobile* must now be well exposed to the sun to mature their pseudo-bulbs, as upon this depends future success. Plants of the *Dendrobium* should be removed to a cool sunny position near the glass as soon as the growths are amber colour. Water will only be necessary in sufficient quantities to keep the growths from shrivelling.

Azaleas will be maturing their buds, and those of the *amœna* type and all early-flowering varieties must be kept cool for the present. Heaths of the softwooded type and *Epacris* will now be developing their bloom buds, and must not be permitted to suffer through insufficient supply of water. Ventilation must be liberal, and the plants protected from heavy rains. In dull damp weather they are very subject to mildew, which spreads quickly and soon disfigures the plants if its progress is not arrested. *Solanums*, *Salvias*, and *Callas* that are planted out should be lifted now and repotted in good loam, with a seventh of manure. They should be placed in a shady position until they recover, freely syringed and supplied with abundance of water. They can remain outside until the appearance of frost. Those most useful winter-flowering plants *Zonal Pelargoniums*, are in much finer condition and better ripened than they were last year. Their treatment for the present will consist in removing the flowers and liberally supplying the plants with liquid manure. The shoots should not be stopped after this date; in fact, stopping should have been discontinued some time ago.

Roses for early blooming will now need attention, as their growth will be matured and the foliage fallen off some varieties, such as *Gloire de Dijon* and *Lamarque*, that have been grown almost similarly to Vines in pots and trained under the roof of a plant house. When ripened as above indicated, it is wise to take the plants from under the roof and place them outside, which will prevent any of the buds starting into growth. After being outside and exposed to a few slight frosts they start into growth when introduced into heat with greater freedom. This is a good time to repot these Roses. The roots should be carefully uncoiled from the sides of the ball, and as much of the old exhausted soil removed as possible without much injury. They can be replaced in the same sized pot, and tied round four stakes placed near the sides of the pots, or trained in any shape according to the taste of the cultivator. It is far better to repot now than in the spring just after the plants have bloomed, which causes a severe check by interfering with the roots after they have commenced working. Hybrid Perpetuals that have been subject to forcing should also be repotted if they require it. It is a good plan to repot them every year before the foliage falls, they then become established before forcing time arrives.

Where *Clerodendron Balfourianum* is employed for early forcing, young plants should be annually grown for the purpose and trained under the roof of plant stoves until ripe, which is preferable to training them round stakes, thus hiding the wood from light and air by their own foliage. If ripe they can now be taken down and trained round stakes and placed in a cooler position, giving them less water at the roots. It is necessary to mention here that *Clerodendrons* require a minimum temperature of 50° to 55°. The cuttings are obtained as early in the year as possible from young shoots when a few inches in length, they are inserted singly in pots and placed in the propagating pit or frame. They quickly produce roots and are potted-on afterwards as they require it in a compost of loam and peat equal parts, and plenty of coarse sand. They are grown in 6, 7, and 8-inch pots. The smallest are useful for room or table decoration. If intending cultivators have not an early plant from which to obtain cuttings, it is a good plan to employ the wood that is ripened now, which strikes as readily as the young shoots if cut off below a joint, a pair of leaves being retained. The cuttings can be inserted round the sides of a 5-inch pot, or singly in small pots. The young plants

should be kept slowly growing through the winter. This allows cultivators with moderate accommodation a long season in which to produce satisfactory plants.—WM. BARDNEY.

THE SCOTCH CHAMPION POTATO.

I WAS pleased to see the remarks of Mr. John Taylor in your last issue relative to the qualities of this Potato; for though Mr. Beachey has a long list of complaints against it, and Mr. Luckhurst thinks it far below the standard of a really good Potato, most of those who have grown the Champion and thoroughly tested it will continue to do so until something better is provided. That it has some objectionable qualities I admit, one being its length of haulm, which renders it unfit for small gardens because it takes up so much room, another its deep eyes; but these objections are insignificant when compared with its good qualities. Two acres of Champions have been grown on the farm here for five years, and they have never failed to produce a heavy crop of good tubers. Some years the disease shows itself amongst them, but never to do much damage; whilst other varieties, such as *Snowflake*, *Early Rose*, and others, are destroyed with it. As to quality, we never have any complaint on that score after we begin the Champions, which is as soon as they are large enough. We have already begun using them this year, but they have not yet obtained their full size. No wonder Mr. Beachey complains of a poor crop when he talks of cutting the tops off and taking up the tubers in August. When cooked they are white and mealy. Mr. Beachey must either have a bad cook or he has not the right Potato, for whether baked or boiled they are always good. There is no need to peel them if a cut or two is made through the skin, thus avoiding the waste that would occur by cutting out the deep eyes.—A. BARKER, *Hindlip*.

MORE ABOUT VIOLETS.

SINCE I last sent you an account of *Violet Argenteaflora* in June and July I have gathered about a hundred blooms every second day from three dozen plants, and still they are being produced. The principal part of the flowers have been produced from the runners, and now the crowns of the plants and the runners are showing flowers plentifully, so that I hope for a full harvest of blooms through the winter. The flowers are not large as Mr. Beachey remarks, and have not the substance of *Victoria Regina*, but they have capital footstalks, admitting of their being made up into bunches 6 inches in diameter, which is unattainable with any other of the small-flowered single varieties. Bouquets of this size have a very elegant appearance and are much appreciated, not the least of their merits being the neat foliage and delicious scent.

Victoria Regina commenced flowering early in August, but it was not until September 3rd that the blooms were abundant. This is a very useful Violet, and unrivalled in purples. In contrast with *Argenteaflora* the effect is pleasing. Here on the north-east coast, over three hundred miles further north than Mr. Beachey, and 540 feet above the sea level, it is necessary to plant in frames to ensure the free flowering of single as well as double Violets in autumn and onwards.

De Parme was gathered for bunching at the same date as *Victoria Regina*, but from its shorter footstalks cannot be made up into bunches of more than 4 inches in diameter, the doubles not being so readily bunched as the singles. *New York* (*odorata pendula*) also was gathered on September 3rd, it and *De Parme* being very similar in foliage and colour. *New York* is a deeper mauve colour with a partially red and white eye, *De Parme* having a white centre. Both are very sweet and beautiful. All the Neapolitan Violets have a tendency to lose the centre growths or crown, which can only be obviated by planting fresh-rooted runners or suckers in spring, and not allowing them to produce offsets during the summer. Double Violets last twice as long in water as the singles.

Prince Consort showed its first blooms on September 9th, but it is not good until October, when it gives flowers one-half larger than *Victoria Regina*, and of a paler or bluish purple. It has splendid foliage, fine rounded petals, and is the finest in form of any. It is not so free to produce runners as many, being in every respect the prince of Violets.

Princess of Prussia is an intense purple, very glossy; flowers of great substance, petals well rounded, and very sweet. Plant not so vigorous as *Victoria Regina*, sparse in foliage as compared with that variety, but forms very full crowns from which spring noble flowers. It evidently is a grand autumn bloomer if not the best, and runners are very sparsely produced. I had the blooms of a lovely soft rose Violet sent me in spring by Mr. Lee, and a more beautiful associate for blue and white Violets it were not possible

to conceive. It was single, had long footstalks, and was very sweet. If it proves equal to promise it will be an acquisition.

To have Violets in pots no plan is better than now to pot rooted runners of the current year, placing them as thickly as possible with some soil between them, in 4 to 6-inch pots, employing thoroughly decayed manure or partially decayed leaf soil and loam in equal parts, potting not very firmly, and placing the pots on ashes in a cold frame. Keep the frame rather close and shaded from bright sun for a few days, then ventilate freely, and never allow the plants to suffer by want of water. Remove them to a house early in November with a temperature of 40° to 45° artificially, and they will bloom all the winter, being very useful for decoration. They should be supplied with liquid manure not too strong, and be kept near to the glass.—G. ABBEY.

NEWCASTLE HORTICULTURAL AND FLORAL SOCIETY.

THE immense popularity the above great northern Show has attained to was more strikingly exemplified in the present Exhibition than in any of its predecessors. The weather was quite the reverse of favourable, but we learn that the financial results will not be far behind those of last year, which is no doubt due to the judicious issue of tickets and the advantages of cheap membership. It would be no easy task to particularise the most important feature of the Exhibition, as in each department there were exhibits of superior merit. The Judges, nearly all south countrymen, were unanimous in expressing their opinion that as a provincial Show it stands among the foremost. The Grapes were fine and in enormous quantities. Gladioli, Dahlias, and Hollyhocks were numerous; indeed it was considered that the latter were never shown to better advantage.

To note the exhibits according to the arrangement of the schedule we commence with the table decorations. For the best table the Society offered £10. This prize is generally strongly competed for at Newcastle. Lindsay Wood, Esq., South Hill (Mr. Thompson), was first with a light and elegant table in his usual admirable and successful style. Messrs. Gellender & Sons, fruiterers, Newcastle, were second with a good arrangement. The centrepiece was especially noteworthy; it consisted of choice flowers of white Camellias, Allamandas, and towards the base were coloured flowers, such as Vallotas and Roses. E. Lange, Esq., Heathfield House, Low Fell, Gateshead (Mr. Methven), was third with an excellent table—a marked improvement on his former attempts. This award did not meet with general approval, as many good judges thought Mr. Methven entitled to the second place, and desired to know what points had led to the decision. Table plants were shown in good numbers. Capt. Bell, Wolsington (Mr. Thompson), was first with *Dracæna australis*, *Croton irregularis*, *Dracæna regina*, *Aralia elegantissima*, *Cocos Weddelliana*, and *Pandanus Veitchii*, all of which were rather large. Many excellent stands of choice though smaller plants were passed. Some of the baskets were very good, but many of them were disqualified owing to their not being in strict accordance with the terms of the schedule. For the best cpergne Mr. Ison, Tower Street, Sunderland, was first in the open class. In the corresponding gardeners' class E. Walker, Esq., Shot Tower, Newcastle (Mr. Whiting), was first with creditable arrangements. There were sixteen bridal bouquets, many possessing considerable excellence. Mr. Jackson, nurseryman, Blakedown, Kidderminster, was first with a neat arrangement of white *Lapagerias*, *Stephanotis*, *Campanula alba*, and double white *Primulas*. Mr. Cramont, Sunderland, was second; Miss Hughill, Sunderland, winning in the corresponding or gentleman's gardeners' class. In the open class nineteen hand bouquets were shown; amongst these Mr. R. Pattinson, St. Ann's Hill Nursery, Carlisle, was first with a bright arrangement of *Tuberoses*, *Ixoras*, *Cattleyas*, and other flowers. In the other class Mrs. Cramont was first with a bouquet in which *Salvia patens* was effectively employed.

The cut flowers formed the principal attraction of this great Show. Dahlias were superb; no less than seventeen collections of twenty-four blooms each were staged. Mr. H. Clark, Rodley, near Leeds, was first in that class with excellent flowers of good size but not coarse; the best being Prince Bismarck, Ethel Britton, Barnaby Rudge, H. Walton, James Cocker, Constancy, Clara, George Smith, Royal Queen, Mrs. C. Reid, Lord Chelmsford, Willie Eckford, Criterion, Miss Proud, John Neville Keynes, John Standish, Mrs. Harris, James Service, Toison d'Or, John Greenaway, and Charles Wyatt. Mr. J. W. Boston, Cawthorpe, Bedale, Yorkshire, was second also with fine flowers. Mr. E. Fletcher, Charlestown, Bailton, near Leeds, was an excellent third; Mr. J. Walker, Low Fell, and Mr. R. Harkness, Allendale, following. Amongst the remaining stands were to be found many excellent flowers. For twelve fancy varieties there were thirteen exhibitors, Mr. H. Clark being also first in this class; Mr. J. Painter, Smallwood, Stoke-on-Trent, was second; and Mr. C. Rylance, nurseryman, Aughton, Ormskirk, Lancashire, third. In the winning stand were good flowers of *Gaiety*, *George Barnes*, *Rev. J. B. M. Camm*, *Attraction*, *Grand Duchess*, and *Octoroon*. In the corresponding class for twelve Dahlias there was strong competition. Amongst twenty-six competitors Mr.

Walker, Low Fell, Gateshead, was first; a successful local exhibitor, Mr. Oliver, gardener to the Earl of Ravensworth, Easington Park, was second with a good stand containing a new *Dahlia*, Earl of Ravensworth, of good shape and of a lilac colour. A certificate of merit was awarded.

For twenty-four Hollyhocks Mr. J. Thompson, nurseryman, Newcastle, was first. The flowers were very large, averaging quite 5 inches in height and diameter. This fine collection was greatly admired. Mr. G. Rogerson, North Middleton, was second; Mr. Sanderson, Whalton, third. Gladioli were also good and in great numbers; Mr. J. Gray, Newfield, Kilmarnock, being first with fine spikes neatly staged of *Horace Vernet*, *Grand Lilas*, *Orpheus*, *Le Phare*, *Camille Benvenuto*, and *La Vesuve*. Mr. J. Fenwick, Netherwitten, was second with spikes of nearly equal merit. Mr. G. Charlton, Morpeth, was third. For nine spikes in the corresponding class Mr. W. Davy was first, and Mr. G. Rogerson second. Roses for the lateness of the season were fine. Messrs. Mack & Son, nurserymen, Catterick, Yorkshire, were first with large and fresh blooms; Mr. Hawkin, Wolvoston, being second, and Mr. W. G. Watson, The Hall Nurseries, Fenham, Newcastle, third. Eleven collections were staged. Asters were admired by all. Mr. W. Spoor, Swalwell, was the most successful in the class for Globe varieties, which were very large and fine; Mr. G. Rogerson taking the chief prize for feathered varieties. Carnations and Picotees were also in fair condition. Pansies and Marigolds were numerous, the latter of extraordinary size. Collections of stove and greenhouse flowers were no exception to the rule, for they were both numerous and good. T. Fry, Esq., Woodhouse (Mr. J. Noble), was first with good bunches of *Ixora affinis*, *Allamanda Hendersoni*, *Bougainvillea glabra*, *Dipladenia Brearleyana*, and *Lapageria rosea*. Wild flowers were an additional feature; Messrs. Hunter and Battensby taking premier honours with good collections, representing nearly all the flora of the district.

The fruit was of superior quality, the Grapes being among the best that have been shown at any exhibition this year. For a collection of eight dishes of fruit the Society offered £6 as the first prize, and the President, G. A. Fenwick, Esq., gave a silver cup. The Duke of Northumberland, Alnwick Castle (Mr. A. Ingram), was first, his best dishes being a good Queen Pine Apple, two fine bunches of Black Hamburgh Grapes, large in berry and finely coloured, and excellent bunches of Muscat of Alexandria Grapes weighing nearly 5 lbs.; Barrington Peaches, Moorpark Apricots, a grand Colston Bassett Melon, Coe's Golden Drop Plums, and late Duke Cherries. The Duke of Cleveland, Raby Castle (Mr. Westcott), was second with a good Queen Pine, Black Hamburgh and Muscat of Alexandria Grapes, fine Princess of Wales Peaches, Red Roman Nectarines, and Moorpark Apricots. Mr. H. A. Mann was third. Mrs. Pease, Southend, Darlington (Mr. Neil Black), had a collection including an excellent Queen Pine which weighed nearly 5 lbs. Collections of hardy fruits were excellent; Mr. Ingram and Miss Surtees, Hamsterley Hall (Mr. Grice), took the chief honours. The competition for six bunches of Grapes was very keen, there being eleven entries. Sir Wilfrid Lawson, Bart., Brayton Manor, Carlisle (Mr. Hammond), was an admirable first with excellent bunches of Black Alicante well finished, Muscat of Alexandria well coloured, and two good bunches of Mrs. Pince's Black Muscat; Mr. Ingram followed with the same varieties in similar condition. Messrs. Laidlaw, Henson, and Westcott secured the other prizes. For two bunches of Black Hamburghs Messrs. Westcott, Cramont, and Laidlaw were first, second, and third respectively with excellent examples. For two bunches of Black Alicante Mr. Hammond was again first, Messrs. Ingram and Westcott following. For black Grapes of any other variety Mr. D. P. Bell, Clive House, Alnwick, was first with his noted Alnwick Seedling, Mr. Ingram following with Mrs. Pince's Black Muscat. For Muscats Messrs. Ingram, Shaw, and Hammond were the winners. For Buckland Sweetwater Grapes, and the heaviest bunch, Messrs. Laidlaw and Hammond were respectively successful. Seven dishes of Peaches were shown and three of Nectarines. Dr. Murray, Jesmond (Mr. Russel), and Mrs. Vincent, Grantham (Mr. H. A. Mann), were the winners; Mr. J. Noble winning in the class for Apricots with the Gros Pêche. The hardy fruit was abundant and fairly good. There were nine dishes of dessert Apples, Mr. C. Rylance being first with the varieties Lemon Pippin, Duchess of Edinburgh, Irish Peach, and Lady Derby. The same exhibitor was also first with culinary Apples, which were of good large size and form, and consisted of Lord Suffield, Rylance Surprise, Grenadier, and King of Apples. Plums were also numerous.

Among the exhibits that were not for competition were collections of skeleton leaves, dried by Mrs. Hodgkins, Hyde Grove, Manchester, Messrs. W. J. Watson, Fenham; Fell & Co., Hexham; Robson & Son, Hexham; Clark Bros., Carlisle; J. Thompson & Son, Newcastle; and W. R. Armstrong, Newcastle, contributed excellent collections of plants, consisting principally of *Coniferæ*, alpine, and hardy plants, which added considerably to the adornment of the Show. The members of the Committee forming the executive were present all the time at their respective posts, conducting the arrangements with courteous business tact. The Secretary, Mr. Gillespie, and the acting Vice-President, Mr. Garrett, also by their efforts contributed largely to the success of the Exhibition.

GLADIOLUSES CLEOPATRA AND MARGUERITA.—Of the many good varieties noticed during a recent visit to Rose Hill Gardens,

Sligo, these deserve special commendation. The one is a fine fresh rose colour tinted with lilac, with large and effective flowers and broad shaded lines, the spikes being unusually long. The other an enormous flower, white, rose, and cerise, with dark carmine spots and beautifully softly shaded throat. Each of these had upwards of twenty flowers to each spike and very open. —W. J. M., *Clonmel*.

APPLE BENONI.

FRUIT below medium size, oblato-cylindrical, even and regular in its outline except at the crown, where it is somewhat undulating, and generally higher on one side than the other. Skin when fully ripe of a rich yellow colour, with a crimson cheek where exposed to the sun, and marked with short broken streaks of darker crimson; here and there, especially towards the apex, there are patches of russet. Eye closed, with flat segments, which overlap each other, and set in rather deep and irregular cavity; tube long, funnel-shaped; stamens median; stalk from a quarter to half an inch long, very slender, and deeply inserted in a round cavity. Flesh yellow, very tender and delicate in tissue, sweet and briskly flavoured, and with a remarkably high perfume, like that of a Pine Apple, which is very characteristic of this Apple when it is highly ripened. Cells of the core closed.

This delicious Apple for the dessert ripens in September. It is a

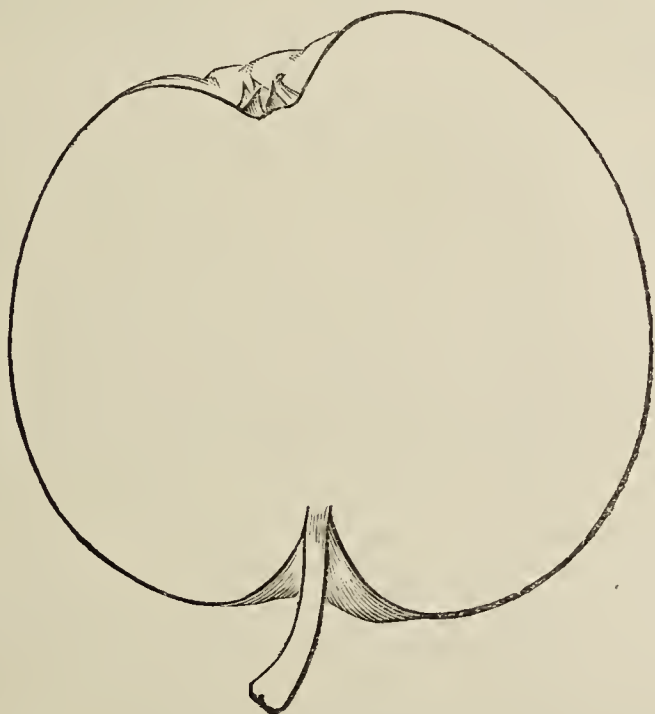


Fig. 55.

native of the United States, where it originated at Dedham in Massachusetts. There it ripens in August, and the colour is described as being of a "deep red." It was introduced to this country by Mr. Rivers of Sawbridgeworth, to whom we are indebted for the specimen from which this figure and description are taken. Some of the fruit we received from Mr. Rivers were grown on a tree in a pot out of doors, and these were a brilliant golden yellow, and the flavour and perfume superb; the others, which were from a bush tree in the open ground, were in accord with the description given above, but had not the exquisite flavour and aroma of those grown on the pot tree. Mr. Rivers says, "I have little pyramids covered with fruit, which were ripened before this time (September 16th) last year." This Apple ought to be in every garden.

THE CHRYSANTHEMUM FOR EXHIBITION AND CONSERVATORY DECORATION.

SOON a scarcity of flowers will be felt, and where flowers are required in quantity there are no plants that supply this desideratum through the dreary months of November and December so well as a few dozen plants of large-flowering and Pompon Chrysanthemums. Where these plants have received moderate attention in affording them copious supplies of water, securing their growths to sticks and tying to prevent breakages by wind, no anxiety need be felt as to results.

Cuttings struck last November or early in the spring should have been potted-on in a compost of good stiff yellow loam, with a liberal admixture of well-decayed manure and sharp sand. Three shifts for large-flowering varieties and three stoppings will

be found quite sufficient, the last shift being into a 10 or 11-inch pot, which size will be large enough for plants to produce from forty to sixty good blooms. Where quality is desired, forty of the strongest shoots should be selected, and all the buds from the remainder removed. These blank shoots can be utilised when training commences to supply foliage to the base of the plants.

Large-flowering Chrysanthemums ought not to have been stopped after the middle of June, and Pompons not later than the first week in July, bearing in mind that well-ripened wood produces good quality flowers. Plants growing freely will require weak liquid manure, frequently commencing the application about a fortnight after the last potting. Soot water is a good stimulant, and imparts a healthy green colour to the foliage. Weak guano water can be substituted, say twice a week, from the middle of October, with advantage to the flowers (but not to the foliage) until they show colour.

Plants that have received the above treatment during the spring and summer months have by this time nearly, or quite, completed their growth. All the early large-flowering varieties intended for public exhibition or otherwise, if not already disbudded, should be attended to without delay. The late varieties will be coming in fast now, and will require attention. The operation of disbudding is simply removing all buds except the centre one, leaving one bud to each shoot, the object being to concentrate the strength of the shoot in one flower. The bush form of training is the best for large varieties. Until the first week in October no training is necessary, except inclining the breaks from the first and stopping them in a downward direction. Sticks 2 feet long, and painted green, will be found very suitable. Some twisting will be required to bring each bud on the top of the stick.

Pompon standards are very useful and beautiful. The only difference in treatment is that the cutting must be allowed to grow to the desired height before stopping, a small wire hoop must be placed round the head, and the branches tied down occasionally. A few of the weakest buds should be taken out as recommended for large varieties, but not to such an extent. —W. H., *Tulse Hill*.

POTATO SELECTION.

So much has been written on the Potato and its disease in the Journal for the last few weeks both practically and theoretically, that, if the subject was not of so much importance to the community generally, there would seem little need for further notes on this matter.

Selection of seed, of site for planting, and of manures, do undoubtedly in a measure tend to reduce the virulence of the disease, but I venture to think that above all we must make a selection of the varieties grown. The notes on Potatoes on page 251 of the *Journal of Horticulture*, by Mr. Muir, contain to my mind information from which much benefit may be derived by those who cannot advantageously carry on experiments for selection purposes on a large scale themselves, especially when those notes are the outcome of repeated trials extending over years when the disease has been exceptionally bad. Mr. Muir, at least, is not one of those "ordinary gardeners" who are said to fold their hands and submit to fate with the apathy of Orientals. I remember with what interest I was shown last summer his extensive plots of trial Potatoes, where not only was there the great number of varieties mentioned by him, but experiments were being conducted on some varieties with different forms of artificial and natural manures.

In the selection of Potatoes the least trouble will be found with those for early use, as the first-crop Potatoes can generally be lifted before the disease sets in. To those mentioned by your correspondent I should like to add Rector of Woodstock, as it is so good in quality at an early stage of growth that it need scarcely be left in the ground after the tubers are of fit size for use, for unfortunately it is very subject to disease, and can only be recommended for use as a first early.

In the selection of a midseason Potato there is more difficulty, and the only one that resists disease well with me is the Schoolmaster. I usually save my main crop of Potatoes by pulling off the tops on the first symptoms of disease, but I am in the habit of leaving a row of each variety with the tops on; and I find that while the rows thus left were utterly worthless in the case of Snowflake, Rector, &c., and much diseased in Porter's Excelsior, International Kidney, Yorkshire Hero, and others, the row left unpulled of the Schoolmaster not only remained good, but the Potatoes had increased much in size, and the crop would be quite one-third heavier than in the rows from which the tops were removed. This immunity results probably from the same cause as that to which is attributed the greater disease-resisting powers of Champion and Magnum Bonum—viz., hard texture of stems. I have

no hesitation in supporting Mr. Muir's recommendation of Schoolmaster, and in advising its use for a main garden crop. I fear we must be dependant on a field supply of Champion and Magnum Bonum for the latest supply, for they are certainly too rank in growth for an ordinary garden.

Each season I have been obliged to give up the cultivation of some late varieties through disease, and if compelled to grow only three sorts would plant Rivers' Royal Ashleaf or a kidney of that type, Schoolmaster, and Magnum Bonum; the last in a field if convenient.—R. CROSSLING.

If Mr. John Taylor will only procure a really good strain of Paterson's Victoria he will find it to possess most if not all the high qualities enumerated by me. The very best form of it that I have met with is the Dunbar Victoria of commerce, every tuber supplied by Potato dealers being exceptionally large, full eyed, and of the true flat kidney-shaped type. The old tubers are still excellent in June, and you may dig up the young tubers as soon as they are large enough for cooking in July, and they will prove so white, mealy, and well flavoured as to obtain the especial approval of those who are critical in such matters, and I suppose we are all so in some degree. Let not the failure of this and most other good varieties last year induce us to give undue preponderance to the one or two points of merit in rampant-growing Champions and Magnum Bonums. Unfortunate indeed must be those persons with whom it is "a question of Champions or no Potatoes" again this year. That it unfortunately is so I have strong reason to believe from the account I have received of water laying for weeks in the furrows between the rows in some districts. Under such circumstances the stronger-growing sorts could alone flourish, and I suppose it is this fact which prompts so many to regard them as superior to more delicate varieties.—EDWARD LUCKHURST.

PETASITES FRAGRANS.

WINTER-FLOWERING plants are always valuable and scarce, and in the Petasites fragrans (sometimes known as Tussilago fragrans) we have a midwinter flowering perennial. The flowers are whitish, with a peculiar Heliotrope-like perfume, and are borne in a thyriform panicle. It can be grown almost anywhere, such as under the benches of greenhouses, in a cold frame, or even out of doors with a slight protection from frost. It was introduced from Italy about the year 1806, and has become so well naturalised in some parts, and especially in Cornwall, as to become a troublesome weed. I think it is best to grow this plant in boxes. Its common name is the Winter Heliotrope.—W. R.

FUNGI A CAUSE OF DISEASE IN PLANTS.

"WHY," writes Mr. Luckhurst in your last issue, "does 'S.' entertain feelings of regret that our opinions are entirely at variance?" My reply to this query is that I suppose it is due to the fact, well known to all, that when a man of whose general accuracy of judgment we were previously assured expresses an opinion opposed to our own, it suggests either that his observations are not reliable, or the equally unpleasant alternative that we have ourselves been mistaken. This was my predicament when I read Mr. Luckhurst's first communication on the subject under discussion, and it induced me to request him to state his reasons for such positive assertions, fully expecting in reply facts that would substantiate his views and subvert mine. In this, however, he has not been very successful, for with one exception we were already familiar with what is advanced; and in my opinion it affords very dubious support to his statements. Taking these in the order he discusses them, the first to be considered is

The Potato Disease.—Under this head your correspondent commences with a question to which he gives an extraordinary answer. "When are fungi perceptible in the Potato? Before the plague spot appears, or afterwards? Invariably afterwards." If this be correct the matter is quite clear and indisputable; but upon what is it founded? If Mr. Luckhurst has microscopically examined the tissue of the Potato with the care and perseverance needed in such work, and has conclusively proved that when the "plague spot" appears there is no trace of fungus spores or mycelium in plant or tuber, then he is entitled to great credit for a discovery of considerable value very modestly announced. If it is not derived from his own observations who is his authority? I have never seen the statement in any of the multitudinous treatises that have appeared upon the subject in recent years. But possibly much depends upon the interpretation of the word "perceptible" in the first sentence quoted; for if this is only intended to signify what can be seen by the unaided vision, it possibly applies to the appearance of the fructification of the fungus on the surface of

the plant, in which case I fail to see how it supports the argument that fungus is a result of disease. This portion of Mr. Luckhurst's reply requires further elucidation, which undoubtedly he will willingly supply. As to the fungus continuing to spread, "no matter how hot or dry the weather may be," I can only say that it is directly contrary to my experience, for hot dry weather most decidedly arrests its progress, and elaborate statistics have been published showing that heat and moisture are its chief requirements. It appears to me unnecessary to seek imaginary causes of disease when those already known are sufficient to account for the phenomena. The Potato fungus is known to poison and corrode the tissue of the plant into which it penetrates, inducing decomposition by a positive action upon the living substance, where its mycelium is traced, and there only are the peculiar characteristics of the Potato disease found. Why was the disease we are familiar with unknown in this kingdom previously to 1845? Why was the *Peronospora infestans* then first observed here, though it had been previously known in America? And if the Potato disease is not the effect of a fungus, what is it? Can Mr. Luckhurst answer these questions satisfactorily? As to the experiments with Salus at Chiswick, they were simply undertaken to ascertain if it possessed any efficacy in preventing the disease; but their success or failure had no bearing upon the relation of the fungus to the disease.

Peach Blister.—A few years ago this subject was discussed at length in the pages of the Journal, but the only evidence adduced in support of the view that the blister is not the result of a fungus attacking the foliage was the generally admitted fact that it is confined to trees occupying exposed positions. This is all that Mr. Luckhurst now advances, and yet it is by no means sufficient to satisfy an unprejudiced mind that his view is correct. In the first place the cold winds, which are alone said to give rise to the blister, do not, so far as my observations go, produce a similar effect on any other inhabitant of our gardens. The tendency of exposure to winds is to cause the foliage to shrivel in the majority of plants, and not to become inflated or blistered, which generally results from internal injury, as in the case of many leaf-burrowing insects. Secondly, the conditions which are claimed to produce the blister are exactly those that favour the production of the fungus, for at no other time does it appear; and this fact, so far from confirming your correspondent's opinion, is directly opposed to it, as if unhealthiness of a Peach tree was all that is needed to render it a suitable habitation for the *Aseomyces deformans* it would surely appear at other seasons, when the moisture and temperature are such as encourage the growth of fungi generally. It must, however, be remembered that fungi are very widely distributed, members of the order occurring in all parts of the world even where the cold is excessive, and many will only thrive when a particular temperature or moisture peculiar to the species or genus is provided. Again, whenever the blistered leaves of the Peach have been carefully examined by competent observers the tissues have been found to contain the mycelium of the fungus, and it is incumbent upon those who oppose the opinion that the blister is produced by the fungus to prove that they have similarly examined leaves in which no trace was present.

Concerning the shanking of Grapes I have little to say. My opinions on the subject have hitherto been in accordance with the overcropping or exhaustion theory, and I should require some substantial evidence to induce me to alter my views. Mr. Harrison Weir is, I believe, the first writer who has advanced the theory that shanking is due to a fungus, and at present his statements have not been confirmed by any other observer.

With regard to the remarks concerning the analogy between plants and animals, Mr. Luckhurst should remember that it is only in the lowest forms that the two kingdoms approach each other. The most highly organised are widely different in structure and requirements, yet it was from the latter that he endeavoured to deduce his argument; the analogy between a man and the Potato plant, for example, is not very striking. His argument in logical form was this: Delicate human beings are more subject to infectious diseases than those that are healthy; plants are analogous to animals; therefore an unhealthy Potato plant is more liable to be affected by the fungus *Peronospora infestans* than a healthy plant. The first proposition is inaccurate, and consequently the conclusion is illogical. Then the statement that "similar conditions are necessary to health" of both the plants and animals is scarcely correct. Plants possess the power of converting various elements and chemical compounds into organised substance, animals can only assimilate that which has already been prepared either by vegetables or other animals; plants chiefly require carbonic acid gas in the atmosphere, animals need oxygen; plants can live where animals would speedily die; and further, the most luxuriant vegetation on the face of the earth

occurs where the heat is greatest in combination with abundance of moisture, both of which in the extreme are adverse to the health of all except the lower forms of the animal kingdom.—S.

RUBUS ROSÆFOLIUS CORONARIUS.

In reply to a correspondent who desires information concerning this plant, we are enabled, by the kindness of Messrs. Veitch and Sons of Chelsea, to give the accompanying illustration of a really beautiful and useful plant. The flowers are very double, pure white, and of neat form, and being produced during winter and spring they are of considerable value wherever flowers are in demand; moreover, the leaves are very elegant, being pinnately divided, the pinnæ small, acute, and dark green. The plant is compact in habit, and well suited for culture in pots in any cool house, particularly a greenhouse, where it succeeds with but little attention. A moderately rich compost of loam, sand, and leaf soil with a small proportion of well-decayed manure suits the plant admirably.

Both the species and the variety are stated by Paxton to be natives of Mauritius, but later writers consider the Himalayas as the chief locality where the plants occur in a wild state. They have now been in this country about seventy years, and it is surprising that such attractive plants should have been so long neglected.

STOKING.

Now that the dull short days and cold long nights will soon be here again, boilers, hot-water pipes, flues, stokeholes, and stoking will require attention, and the most important of all, in my opinion, is the stoking. Many different shaped boilers, various sized pipes, and many kinds of flues will all produce heat, but whether that heat be much or little, produced with economy or extravagance, all depends on the person who has to attend to the fire. So far as my experience goes, there is nothing more troublesome than to induce young men to attend to the fires properly. One will continually have the fires so low that they are always half out; others will persist in throwing large quantities of coal on whenever the fires are looked to, regardless whether that which was put on previously is burned down or not. This is a very common and most extravagant way of firing, because much coal is wasted, but there is little obtained from it, as a mass of smouldering black coal never does emit much heat. Another way is to fill up the fireplace with as much coal as it will hold, and not look at it again until the whole has burned down. This is a good way to save labour; but for economy in coal, steadiness in heating, and satisfactory results in every way, this system can never be carried on with success.

Nothing will give a gardener or employer more satisfaction than seeing the fires well attended, and when once a person takes an interest in it the whole is easily done. When the fires are used constantly the ashpits should be cleaned out daily. An old man or boy is employed in many gardens to do this work as well as to take in the coal. Those making gardening a profession need not be expected to do this except when there is no one else to do it—when a fire is only lighted for a night or two on the occasion of a little frost, &c., and then allowed to go out for days or weeks afterwards. Cleaning the place out thoroughly should not be left until the fire is needed again, as this generally leads to much confusion.

Cleanliness should always be one of the leading orders in the stokehole. Coals and ashes mixed together and covering every inch of the floor indicates much carelessness and waste, besides adding to the work of the fireman and detracting from his comfort. The floor should be clean, ashes and coal in their proper places, and all in good working order. Stokeholes are often associated with dust and dirt, but it is only by allowing these to accumulate that anything of the kind becomes troublesome, and in a tidy stokehole any one might stir up the fire or throw on coal without making more dust than comes from any ordinary kitchen range. One of the principal matters to be done to insure good firing is always to keep the fireplace clear of exhausted fuel. A heap of clinkers at one side and a large quantity of black ashes at the back will most effectually stop the fire from burning well and cause a deficiency of heat; this is always found in bad-managed

fires, a little clear spot inside the door being all the means left to drive the fire. Coals are thrown on to such a fire, but they are never properly consumed. Small red fires produce the most heat. When a fire is half burned down many throw more coal on it—a very bad plan, as in this way a great quantity of coals are used and little heat produced.

When a fire is started any time during the day, do not heap it up as if it was not to be looked to again for a week, but put on a small quantity and let this burn well down into a glowing mass before more coal is added. Using a large quantity of coal is by no means a sure sign that much heat is being produced; very often it proves the reverse. During warm days and cold nights the fires should be cleaned out in the morning as usual, then put on a



Fig. 56.—*Rubus rosæfolius coronarius*.

fair quantity of coal, the large pieces at the bottom and the smaller on the top; close the ashpit door, and lower the smoke or chimney damper, and everything will remain safe until the afternoon. When the fire is started again it is only necessary to break up the coal placed on in the morning with the poker, and a good fire will be the immediate result. No more coal should be put on then until the heat is well up and the fire well burned down. When the fire chances to burn very low, placing a large quantity of coal on it will effectually prevent the heat from rising for a long time, but if only one or two shovelfuls are put on it will burn up quickly. These appear small details but they are of great importance, as it is by neglecting these small matters that a good system is spoiled. When the fires are attended the last thing at night more coal has generally to be put on than is used at any other one time, but those who take an interest in their fires soon find out what quantity of coal will last for so many hours and work accordingly. In windy weather fires burn much quicker than at other times, but they can always be regulated by the ashpit door or damper. The number of times to attend to fires during the day or evening must be ruled by the heat to be

obtained, the weather, and other circumstances.—A KITCHEN GARDENER.

LOBELIAS.

BLUE and other dwarf Lobelias are such general favourites that no flower garden, however small, can be satisfactorily furnished without them. As edgings for beds, lines, vases, and window boxes they are indispensable, while a patch here and there near the front of a mixed border not only does not appear out of place, but imparts cheerfulness and completeness to the general arrangement. The present is the period for providing a stock of these attractive flowers; and fortunately the work is easy, and the necessary plants, even for a very large garden, occupy but little room during winter, and require little heat. A shelf near the glass in a light greenhouse is the only convenience required, while the attention the plants need to preserve them is of the slightest.

It is generally conceded that the plants are best propagated by cuttings; indeed this, or divisions of some of the dense growers, are the only modes of keeping the varieties true. When, however, a large number of Lobelias are required for long lines in the front of shrubby borders or for mixed beds, raising the plants from seed is the quickest, easiest, and most convenient mode, while the results are usually satisfactory. For panels and lines, where great exactitude in the heights and habits of the plants is important, seedlings must not be relied on, for even if the seed has been saved from plants raised from cuttings there will be several plants varying more or less from the original, and which would mar the effect of a small geometrical arrangement; but this little diversity is not in the slightest degree obtrusive in the long lines above noticed, and in mixed borders.

As is generally understood plants raised from cuttings are the best from which to save seed, for there is then less deviation in the habits and colours of the plants resultant than of those the produce of seed saved indiscriminately from seedling plants. Yet if seed is saved from seedling plants indiscriminately instead of indiscriminately a valuable strain of Lobelias may be perpetuated. For seed-raising a row of plants should be grown in a warm, sunny, and rather dry position, and as soon as the plants flower all that are faulty in habit or colour should be pulled up, and those remaining will be almost if not quite equal as parents to plants raised from cuttings. I can point in proof of this assertion to some hundreds of yards of Lobelias, the plants of which have been thus perpetuated by seed for more than twenty years, and with the display no fault can be found, for the lines are true, level, and uniform in colour.

For general purposes in long borders and large beds the old Lobelia *Erinus speciosa* is not yet surpassed, if equalled. For raising plants that will be of good size in May the seed is usually sown in February, the plants being grown on in heat for two months, then duly hardened off. It is, however, often much better to sow the seed in September, wintering the plants in the seed pans or boxes on a greenhouse shelf. They there grow steadily all the winter, are hardy in character, and ready for pricking off in the earliest days of spring. This is the plan *par excellence* for amateurs who only possess a greenhouse, with perhaps a frame or two to aid them in preparing plants for their flower gardens. The seed should be now sown without a day's unnecessary delay in pans or boxes of rich light soil, which must be kept constantly moist. A cool, moist, shaded frame is a suitable position for raising the seedlings.

When the stock of Lobelias is raised from cuttings there are three modes in which stock plants are provided:—1, By potting a few small plants in the spring and plunging them in ashes in the open ground, cutting off the flowers two or three times during the summer to induce a mass of healthy growth. These plants, if grown in 5-inch pots and shifted in February into pots a size or two larger, produce an abundance of fine cuttings for propagating purposes. If all the cuttings are not wanted the plants flower profusely in May, and are most valuable for conservatory decoration. 2, By taking cuttings now from the base of the plants, inserting them in sandy soil, and striking in a close frame. These pots of young plants placed in heat in spring afford a plentiful supply of fine cuttings. It is, however, sometimes difficult to find good cuttings now for insertion, and the best mode of insuring them is by partially cutting down a portion of the plants in August. 3, By taking up a few old plants from the beds in the autumn and establishing them in pots. For this purpose, it may be added, the plants are much better if the flowering parts are cut off a month before the plants are potted. They must be potted in light soil to induce quick root-action, and no position is better for them than the north side of a wall in the open air until frost approaches, when they must be placed in a cold frame,

from thence when severe weather is imminent transferred to the greenhouse. These modes of establishing stock plants apply to all the free yet compact forms of the *Erinus* type, by whatever names they are known and of whatever colour are the flowers.

The dwarf or *pumila* section may be treated differently. The plants of this type, being of a dense cushion-like habit of growth, produce roots from the stems most freely during moist weather in autumn. If rooted slips or tufts are taken off, severing all the flowers from them, and these rooted portions are planted an inch apart in boxes of light sandy soil and placed in a close frame, the plants are soon established and form a compact surface of healthy growth. These boxes, wintered like the seedlings on a shelf in a light house, afford in the spring further slips in great numbers, or thousands of cuttings. For geometrical designs, panels, and low edgings the variety *pumila grandiflora* is not yet surpassed for general usefulness, and it ought not to be hastily set aside in favour of newer varieties with high recommendations attached, no doubt in good faith, by the vendors of plants. The improved form *pumila magnifica* has larger flowers, but the plant is less dwarf; it makes a beautiful edging to a moderate-sized bed, and is fine for pots. It may be grown in addition to, but cannot be safely substituted for, the former.

Of the somewhat stronger yet compact-growing varieties for general purposes, lines and edgings, the following are among the most useful. As an edging for a large bed the true *speciosa* from cuttings is one of the best, and from seed it makes a fine second row plant for a long border. Much dwarfer, rich in colour, and floriferous is the popular variety Brighton; it is excellent for edgings, close, dense, and bright. Ebor is darker and very effective. Blue Gem is paler, indeed is the purest blue of all. Lustrous has a distinct white eye; and Mazarine Gem is of the same type, both having a pleasing appearance in lines or masses. The new variety Blue Beard I have only tested on a small scale; it is highly promising and will be increased. Of the pink varieties Omen is still by far the best I have grown for a close line; it is very distinct, and indispensable to every well-furnished flower garden. The variety with what a correspondent has well described as the "funny name" of "What's That" is perhaps a trifle better in colour, but more straggling in habit, and will not drive Omen out of the garden. Of the silvery lilac forms Paxtoni, though still good, and coming fairly true from seed, making sparkling edgings, is superseded by Lady Macdonald and Dixon's Gem, which are charming when well grown in pots. One of the most useful whites is Princess of Wales, which is good in habit, pure, and free. When in good condition the double Lobelias are effective in pots and window boxes, but as edging plants they do not last sufficiently long in flower. Of the new yellow variety Lutca I can only say it is novel. Yellow it undoubtedly is, but the habit is loose and the flowers few; it will never make a good edging plant, and its proper place is, I think, a sunny rockery. It is so dissimilar from the ordinary type of bedding Lobelias as to make one wonder that it is included in the genus, and I shall be glad to see the result of the first cross that has been effected between this and one of the blue varieties above noticed. If my head does not ache before that is accomplished I fancy I shall not be troubled with that complaint for a year or two. I may, however, be wrong; we shall see.

Those who wish for a stock of any varieties of Lobelias that they do not possess should purchase plants now. They are generally kept in pots by those who grow them largely for sale, and such of these plants kept through the winter, potted and grown on in heat in early spring, may be increased a hundred-fold by the 1st of May.—A FLOWER GARDEN FOREMAN.

THE EFFECTS OF ELECTRICITY ON VEGETATION.

UPON page 265 Mr. Bridgman gives an extraordinary account of electrical influence upon plants, and were it not for the circumstantiality of the details I should have entertained grave doubts as to its accuracy. But the particulars of the experiments are so clearly stated that there can be no question as to the facts, though the causes are by no means so evident as are supposed. The first statement concerning the Fern case is the most remarkable. All the effects described may have been produced, but that they were the results of electrical action is open to doubt. The whole theory of galvanic electricity rests upon the necessity of two metals being in actual contact or connected by means of wire, the metals employed being of dissimilar constitution—that is, one must readily combine with the oxygen of acids, and the other resist that action. The more marked are these differences the better the battery, and the greater the intensity and quantity of the electricity produced. The metal which undergoes decomposition is termed the positive pole, and the unaffected metal is known

as the negative pole of the battery. Of the positive metals zinc is chiefly, and iron occasionally, employed; and of the negatives, copper, carbon, platinum, gold, and silver are the most important, the three first being most commonly used. In a galvanic battery thus composed the comparative quantity of electricity produced, provided the metals be the same in each case, will be in proportion to the size of the plates, but the intensity is in proportion to the number of pairs employed. A battery of a single pair of plates has but little chemical influence, and to effectually decompose chemical compounds it is necessary to increase the intensity of the electricity. The bearing of these facts upon Mr. Bridgman's statement concerning the Fern case are as follows: The metals of which it was composed—viz., zinc and iron, were similar in galvanic constitution, and therefore would under any circumstances produce a very small quantity of electricity, which would in that particular instance be still more reduced by the smallness of the surfaces in contact, for the edges could not exceed an inch or two in diameter. The amount of electricity evolved, presuming there to be any action at all, would therefore be so very small that it is highly improbable it could affect growing plants either injuriously or otherwise. I should be inclined to attribute the damping of the Ferns either to insufficient ventilation or to some obnoxious material having been employed in painting the inside of the case. As to the effect of placing strips of wood between the upper and lower portions of the case, let me ask, Were they placed all round so as to render the case as close as it was previously, or only at the ends or sides? If the latter, then the increased amount of air admitted would effectually dissipate the mildew. Finally, what soil was employed? This may have had some influence in the matter.

Mr. Bridgman's observations concerning manures are also, to say the least, unique. Manures are, he remarks, divisible into two classes—those containing oxygen and those devoid of that element; the former conveying "oxygenated food" to the plant through its roots, and the latter "producing mildew and other fungi." From this it appears that Mr. Bridgman regards oxygen as the chief food of plants, and those compounds that do not contain it as positively injurious. This requires some proof; for why is ammonia, consisting of nitrogen and hydrogen only, so beneficial to plants? Is it not because both the elements are of considerable importance to their health and are readily assimilated? Nitrogen especially is necessary to the sustenance of the living portion of the plant—the protoplasm, and the chief sources are nitric acid and ammonia; the former contains a portion of oxygen, and the latter none. Further, if these non-oxygenated compounds are so injurious to vegetation as your correspondent would have us believe, why are they beneficial to fungi, which are to a large extent of similar chemical composition to other plants?

Concerning the injurious effects of excessive applications of manure there can be no doubt, but the effect even then is to a great extent mechanical. The soil is so saturated that drainage is impeded, the plants cannot assimilate the nutriment fast enough, and consequently it decomposes, forming an abundance of acids that speedily exert an injurious effect upon the roots, and are doubtlessly absorbed into the tissues of the plants in such quantities as to produce disease and ultimately death.—NEMO.

BORDER FLOWERS—LINARIAS.

A SELECTION of the herbaaceous Linarias cannot fail to interest the cultivator and admirer of choice border flowers, but some of the Linarias can only be seen to the best advantage in their native homes. One of the most beautiful is our common Toadflax, *Linaria vulgaris*, which when seen in the limestone districts on railway embankments, stone quarries, old walls, and other places is exceptionally beautiful. It also thrives under cultivation on the margins of the shrubbery or on the rockery. In the border it often becomes troublesome to the cultivator from its rapid increase. Its offspring, *Linaria peloria*, when once established if not checked will soon overrun a large space of ground, especially in light soil. I find them useful for cutting where yellow flowers are in demand. It is not my intention to enumerate all the species, but to call attention to a few. If anyone wishes to have a peculiarity let them procure the Three-bird Toadflax, *Linaria triornithophora*, (what a name!) and cultivate it in a compost of sandy peat and loam with well-decayed vegetable substance, in a moderately dry situation on a rockery exposed to the sun. The Ivy-leaved Toadflax, *Linaria cymbalaria*, its white variety and the variegated form, are useful for covering old walls and moist places. The purple Toadflax, *Linaria purpurea*, is a distinct and showy plant, but seldom seen. The gaping Toadflax, *Linaria hians*, needs careful search, and will well repay any labour bestowed upon it. *Linaria tristis*, *L. marginata*, *L. venosa*, and others that might be named,

seem to be quite forgotten. Any moderately dry situation is suitable, and as a rule Linarias prefer sandy soil containing a good portion of decaying vegetable matter. They are readily increased by seed sown in the open ground in sandy soil in the spring, and by division of the plants in the autumn and the spring.—LINARIA.

TRINITY COLLEGE BOTANIC GARDENS, DUBLIN.

WHETHER the visitor loves trees, shrubs, plants, and flowers on account of their appearance, intrinsic merits, medical properties, or beauty, these fine, old, and admirably laid-out gardens will have a special attraction for him. Here the professors from the University, College Green, distant about two miles, find materials for illustration of their lectures, and occasionally take their pupils for practical instruction. Medicinal plants are separately arranged and classified. On the occasion of my visit the respected Curator, Mr. F. W. Burbidge, was absent in London; but the foreman, Mr. Kavanagh, took much trouble to point out the many rare and beautiful plants in the several glass structures, and the hardy collections out of doors, of which the few following notes, from memory principally, may have an interest for some of your readers. Although situated in the suburbs, owing to the tasteful arrangement of shrubs, &c., there is a complete isolation from city sounds and sights; and as the public are not admitted except on business, the horticultural student, amateur or gardener, may pursue his studies undisturbed. The borders are planted so as to be objects for imitation and general interest to the observer, and such as they can have at home, as distinguished from plants arranged according to their natural orders. There were fine specimens of Dahlias, Asters, Carnations, and of *Dianthus Eastern Queen* and *Crimson Belle*, the best I have ever seen, and apparently distinct from those generally grown. Convenient in an outside border was the Cardinal Flower, *Lobelia cardinalis*, which I was assured lives here without the slightest protection, though almost extinct in outdoor country gardens owing to the severity of the last few winters' frost. The same is true of the shrubby *Veronica*s and many others now flowering, such as *Schizostylis coccinea*. In fact many plants seem to reach dimensions not usually attained elsewhere, probably owing to the salubrious situation and the protection of high walls, except on the south.

The south-east winding border is well arranged for effect, with a background of such tall plants as Hollyhocks, Sunflowers (many of them were double) a stand of similar blooms at the last Dublin Flower Show were much admired, tall Phloxes, with the dwarf varieties near the margin, brightened here and there by the Flame Flower (*Tritoma Uvaria*), and with such dwarf plants as *Acæna microphylla* near the edge. The glass structures contain many rare and good plants. Very few Orchids, though the collection is considerable, are now blooming, though all seemed healthy, perfectly free from insects, and well grown. A handsome specimen of *Oncidium flexuosum* deserves notice, owing to the number of blooms it contained. The Lattice Plant (*Ouvirandra fenestralis*) seems here to do remarkably well grown under water which is very pure. It is planted in an ordinary 2½-inch pot in peat, and this is plunged in a vessel of water. There are many aquatic plants and mosses that look very interesting, as *Azolla pinnata* and *Salvinia natans* grown in pans of water, and with which some soil has been commingled. The latter fruits under the surface of the water, and the berries produce new plants the following year, thus providing for its perpetuation. Filmy Ferns seem unusually healthy, the system of growth pursued being to lay small pieces of spar on the young rhizomes in the pans to keep them growing down in a mass. The fronds were very fine. It may interest many readers to refer to the system here pursued of *Croton* and *Dracæna* propagation—viz., by slitting the stems, sawing the side out of a suitable pot, introducing the incised portion, and tying tightly around with sphagnum, &c. Rooting in a warm temperature rapidly occurs. I noticed the same system pursued with slight variation at Roebuck Castle and Powerscourt. I cannot conclude without referring to the fine fruit produced on a specimen *Musa Cavendishii*, and the small pots in which Mr. Burbidge succeeds in growing his Pitcher-plants. For instance, a specimen of *Sarracenia purpurea* was 18 inches high in a 2½-inch pot, proving that moisture was the principal requisite.—W. J. M., *Clonmel*.

THE GROWTH OF WELLINGTONIA.—I measured one of these trees a few days since which was planted on the day of the marriage of the Prince of Wales, March 10th, 1863. Its circumference 6 inches above the ground is 9 feet 7 inches. This seems to me to be very remarkable. An Oak would be growing 150 years before it attained such dimensions. It has often occurred to me that owners of large estates would do well to cultivate this

giant, as I apprehend the wood would be useful for building purposes. The tree is also very ornamental. An evergreen avenue or approach to a mansion, for instance, would be easy and of quick accomplishment. The tree referred to is in the parish of Hinton, Berks.—THOMAS MOSS.

CHRYSANTHEMUM ETOILE D'OR v. C. SEGETUM.

THERE was considerable praise bestowed upon Chrysanthemum Etoile d'Or when it first appeared, but when I first saw it I was greatly disappointed. Why our florists went to the expense of having it from France is beyond my comprehension; for in, probably, the first cornfield they meet with they could obtain a superior flower, and that is Chrysanthemum segetum. I am very glad to hear that Mr. F. W. Burbidge is at the present time engaged in saving seed from varieties of promisc. Some of your readers will no doubt say that I have not seen the true variety, but as the plants came from Swanley they must be true.—W. ROBERTS, Penzance.



OUR attention has been directed to a rather peculiar instance of PRESS PIRACY, and singularly enough it has been suggested that we are the pirates instead of the victims, of what we must term a sharp and shabby example of Irish padding. A letter before us contains the following:—"In the last number of *The Garden* there is an article on 'Annuals for Spring,' taken ostensibly from an Irish paper. Is there such a periodical? and if so did you pirate the article in question? If you did not it has been stolen from you, as though slightly reduced, it is a reprint from page 242 of the *Journal of Horticulture*. I suspect the latter is the case, and I detest such dirty work." Though there is so much literary piracy now-a-days, more or less flagrant or more or less veiled, so much vamping up to fill dear pages cheaply, we are usually content to let them pass. In this case, however, we must put ourselves right with our correspondent and the public. We had observed the article referred to in the London paper previous to receiving the above letter, and endeavoured to purchase a copy of the "Irish paper." The London agents of that print could not supply it on the ground that it has no circulation in England. A friend, however, to whom it is sent gratuitously exhumed it from his waste paper store, and it is now before us. We are not surprised that it has no circulation in England, and we suspect that not many intelligent people of Ireland "take in" such a poor attempt at journalism, or are "taken in" by it. Truth compels us to state that poverty is stamped on the very face of the number before us, for every line of the two facing pages, 582 and 583—the best part of the number—is either borrowed or stolen, the article from our pages being in the latter category. Poverty and honesty often happily go hand in hand, and we regret to have to notice an instance to the contrary in the case in question. The curious example of literary patchwork referred to is too obscure to be named, but when it is made the medium for purveying stolen property to another paper of greater pretensions, it is time for us to interfere and to put the gardening public on their guard against such unworthy tricks. It is a wonder to us that such trash can exist in Ireland, where agriculture and horticulture are so admirably and honourably represented by our excellent contemporary the *Irish Farmers' Gazette*.

— NEXT year being the fiftieth anniversary of the opening of the gardens of the MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY, it is intended to commemorate the event of holding a grand international autumnal exhibition of fruit, flowers, vegetables, implements, &c., and a general committee is in course of formation for carrying out the project.

— IN our notice of the MAIDSTONE FRUIT AND CHRYSANTHEMUM SOCIETY'S schedule last week we inadvertently omitted to state that the Show will be held on November 19th. Mr. F. Pine, jun., Maidstone, is the Honorary Secretary.

— THE attention that is given to the cultivation of the DAHLIAS in the north of England is evidenced by the report of the Newcastle Autumn Show, which appears in another column. They are invariably an important feature at that Exhibition, but on this occasion nearly a thousand blooms were staged in competition, sufficient to produce a display of extraordinary brilliancy, and such as we have not had this year at any southern exhibition, if we except those "not for competition" displays at "the Palaces" north and south of the metropolis.

— THE VIOLENT STORMS that have recently prevailed have in many parts of the country proved very injurious to plants, shrubs, trees, and crops generally. This was especially the case in the neighbourhood of Wolverhampton, where on Sunday last a severe thunderstorm, accompanied by hail of great size, not only seriously affected plants outdoors, but also did considerable damage to the glass houses and their occupants. In other districts the heavy falls of rain have flooded roads, gardens, and fields, greatly injuring crops of all kinds.

— A VERY handsome plant for flowering at this time of the year is CEANOTHUS LATIFOLIUS, which is one of the finest of the genus. The bright blue flowers are borne in a dense thyrse-like inflorescence, and the main peduncles being long renders them useful for cutting, though the flowers are not of very long duration. Perhaps the best position that can be assigned to this plant is a border of good soil near the south-west or west aspect of a wall, to which the stems can be loosely trained. But almost any moderately sheltered position will suit it.

— WE regret to announce the DEATH OF MR. JOHN MANNINGTON of Uckfield, though, at the great age of ninety-three years, it was not to be expected that his life would be much prolonged. Mr. Mannington was an ardent raiser of seedling fruits, and up to the time of his death was engaged in his favourite pursuit. Mannington's Pearmain Apple, though raised by his grandfather, was first observed by Mr. Mannington, and when the original tree was on the point of extinction it was he who preserved it by securing grafts from it. Mr. Mannington has raised several excellent Pears of hardy constitution, which are now in the hands of Messrs. Paul & Son of Waltham Cross. So recently as last November we received specimens of his seedlings, and at the conclusion of a very long letter he finishes by saying, "I am ninety-two if I live till the 9th of February, and this is written without glasses."

— AS an ornamental tree for small avenues, pleasure grounds, and lawns in villa gardens, ROBINIA PSEUD-ACACIA BESSONIANA is one of the best, and is worthy of being more extensively planted. The ornamental character of this tree is admirably displayed at Chiswick, where Mr. Barron has planted it at intervals of about 15 feet on each side of the new road at the west end of the Royal Horticultural Society's Gardens. It is difficult to imagine that any other tree could produce the same satisfactory effect there. It combines elegance with symmetry in a very striking manner, and the fresh refreshing green of its graceful foliage contrasts favourably with the rusted and fading appearance of all other deciduous trees in the neighbourhood, an Occidental Plane perhaps excepted. Robinia Bessoniana forms a perfectly globular head, after the style of the Mop-headed Acacia, *R. inermis*, but is much freer in growth, larger and more feathery. This beautiful tree appears perfectly hardy, as it did not sustain the slightest injury by the severe frosts of last winter, and it is not too much to say that healthy handsome specimens such as those referred to would add

to the beauty of every lawn of suitable extent and every pleasure ground in the country. Intending planters should make a note of *Robinia Bessoniana*.

— MR. IGGULDEN has more than once adverted to the usefulness of the EGYPTIAN TURNIP-ROOTED BEET. Amongst other Beets this variety is largely represented at Chiswick this year, and Mr. Barron speaks highly in its favour on account of its earliness, excellence, and productiveness. We have long grown this distinct and good variety, and find that it is unsurpassed, if equalled, in quality by another of the long-rooted forms. It has less of the earthy taste that is more or less present in most Beet, and the absence of which is possibly attributable to the portion that is cooked being produced nearly or quite above ground. The Turnip-rooted Beet is not by any means grown so largely as its merits demand, and those who have not yet included it in their gardens may safely give it a trial.

— A CORRESPONDENT describes *CHLORA GRANDIFLORA* as a splendid plant for pots to flower in spring and early summer. Its golden yellow flowers, starry with many petals, produce an effect of colour and elegance not easily forgotten. Seeds should be sown at once, and its culture should be that of annuals to flower in spring.

— THE uprooting of the EDELWEISS plant has been strictly forbidden in Switzerland. The cantons of Berne and Obwalden have issued a police ordinance forbidding the plant being passed if it has roots.

— WE have received the schedule of the first autumn Show of the LIVERPOOL HORTICULTURAL ASSOCIATION, the date of which is fixed for November 23rd. It contains six classes for Chrysanthemums in pots and seven for cut blooms, the prizes ranging from 60s. to 10s. There are fifteen classes for miscellaneous plants, the principal prizes being £5, £3 10s., and £2 for ten stove and greenhouse plants, not less than four to be in bloom, and there are nineteen classes for fruit, the prizes for a collection of twelve dishes being £3, £2, £1. Considering the skill with which Chrysanthemums are grown in the Liverpool district, and the broad and liberal condition that "specimens may be exhibited from any part of the world, and by any person, either for sale or for competition, or may be marked not for competition," a Show worth seeing may be confidently expected. The Show is under distinguished patronage, and has an essentially practical Committee, of which Mr. Washington, 37, Aigburth Road, Aigburth, is the Secretary.

— MR. YOUNG, gardener to Henry Webb, Esq., Redstone, Redhill, Surrey, informs us that he obtained a bushel of CARTERS' MAGNUM BONUM POTATOES, which he cut into single eyes and planted 30 inches by 18 in sandy soil in April, and he has just dug 34 bushels of good sound tubers—the most satisfactory yield of Potatoes he has seen on Mr. Webb's estate for twenty-eight years.

— MR. GUIDO SCHMITT writes as follows to the *Daily News* on ARTIFICIAL FLOWERS:—"This article has of late been manufactured and used on a constantly growing scale, in spite of the improving good taste which shows itself in so many ways. Artificial flowers anywhere except on the stage are unæsthetic, and should not be considered legitimate ornaments. Ladies and children wear them on bonnet or dress, where none but real flowers ought to be seen. 'They do not last' is the excuse; but in their fading and dying lies the tragic poetry of Nature—the fate for the living fresh flower. Gentlemen only wear real flowers in their button-hole. If they suddenly began to wear artificial ones the barbarous ridiculous fashion would strike us at once. Habit makes us think that the imitation flower is fit for ladies and not for gentlemen, but the hint thereby conveyed is indisputably

important. No one who has reverence for Nature can, upon reflection, admire or wear these sham things. The manufacturer of flowers, however wonderful his performance, effects what he pretends to be a substitute for Nature; he merely makes an idol full of disappointment."

— THE AMERICAN PEACH SEASON is now drawing to an end. So far there have arrived in Boston upwards of three hundred and sixty cars of Peaches, or nearly two hundred thousand baskets, an increase of about 100 per cent. over last season's receipts. The Peach season is a very hard one on the receivers. They begin at three o'clock in the morning to gather at the freight-yard, are busy throughout the day selling and delivering the fruit, and at the close are kept employed until eight and ten in the evening sorting and loading the baskets to be returned, and making up account of sales. Three or four dealers each handle from three thousand to four thousand baskets daily, which come from about 1300 shippers. It is estimated that through the season, which lasts from five to six weeks, there are about 2200 different Peach-shippers sending to Boston. Each shipper is advised daily of the condition of the market, and the accounts are made up and remittances forwarded twice a week. Stating the average of the present season's sales by receivers to have been at 1 dol. 20 cents a basket, about 250,000 dols. has been sent from Boston to Delaware farmers. The crop is supposed to be about a three-quarters one, that is about nine million baskets. The crop of 1875, said to have been twelve million baskets, was the full season. That year, however, it is thought quite certain that the farmers all ran in debt with their Peach business. The highest price good Crawfords averaged that year was one dollar a basket, and at that they were reshipped from New York, which necessitated the paying of two commissions. This year 1 dol. 75 cents and 2 dols. have been the high averages on lots of choice Crawfords.—(*American Cultivator*.)

PEONIES.

A FAMILY of large-growing, showy-flowered plants, remarkable for the shrubby habit which one section (*Trec Pæony*) assumes, a character so very rare amongst members of this order. It is extremely difficult to understand why such glorious flowering plants as the *Trec Pæonia* and its varieties should at the present time be so very rarely seen in English gardens, whilst the herbaceous section, although not quite so large, are by no means deficient of merit. They are splendid objects in shrubbery borders, in the wild garden, or any place where gay and ornamental plants are desired. They are specially valuable for planting in spots overshadowed by tall trees. Here, where most plants drag out a miserable existence or die, the herbaceous Pæonies flourish, throwing up their bold compound leaves, and unfolding their large and conspicuous flowers, which last for many weeks in full beauty. The Mountain or Tree Pæony is not quite so hardy as the herbaceous, but the extraordinary size and beauty of the flowers should be sufficient reward for any amount of trouble. Planted on the lawn and slightly protected in winter, they repay this slight trouble a thousandfold by unfolding their enormous but brilliant flowers in spring. For wall plants they are also admirably adapted, and in such positions can be very easily protected. Whilst referring to the subject of protection, these, and indeed many other plants which require a little help to tide them over our peculiar seasons, more often reap injury than assistance from the methods adopted to protect them. I hold it quite as essential to shelter them from the effects of early spring sunshine as from frost. There is more probability of enjoying the flowers by retarding than by allowing them to be started into action early in the season, when we sometimes have strong sunshine succeeded by cold and piercing winds. Therefore we should advise the protecting material to be only used in cases of severe frost, and on bright sunny days through the winter and early spring. Of course when used against sunshine there must be a space left to allow a current of air to pass through between the plant and the material, in order to keep a cool temperature.

As a genus *Pæonia* may be thus characterised. Roots in the one section fusiform with herbaceous stems. In the Mountain section the stems are more or less woody and branching, attaining a height of 3 to 5 feet or more; they have five unequal, imbricate, leafy

sepals, and five to ten broad, roundish, conspicuous petals. Carpels two to five, many-seeded. Disk fleshy. These plants will thrive fairly in any good garden soil, but prefer light and rich sandy loam. After planting they will give little trouble, as they dislike the ground disturbed about them, which is another proof that the periodical digging in herbaceous borders is a very great mistake. The following is a selection well worthy the attention of all owners of a garden. It, however, by no means exhausts the supply. *Pæonia Moutan Anneslei*, alba grandiflora and fl. pl., atro-purpurea, Beauty of Canton, Candidissima, Dr. Bowring, Emperor of China, Glory of Shanghai, Ocellata, Papaveracea alba plena and rubro-plena, Robert Fortune, Rollissoni, Rosa Mundi, Rosaformis, Samarang, Triomphe de Gand and Malines, Victoria and alba, *Viola* purpurea and fl. pleno, Zenobia.

In the herbaceous section there are many fine varieties. Those here named will not fail to please every lover of hardy and showy flowers. *Alba superba*, *Anemoniflora carneo-tincta*, *Atrosanguinea*, *Auguste Van Geert*, *Candidissima*, *Carnea maxima*, *Centifolia rosea*, *Charles Binder*, *Edmond Lebon*, *Eugène Verdier*, *Festiva maxima*, *Gloire de Douai*, *Henry Demay*, *La Sublime*, *Leonie*, *Madame Chaumoy*, *Madame Victor Verdier*, *Madonna*, *Marie Dhour*, *Prince Charles*, *Prince Imperial*, *Prince Prosper*, *Tenuifolia*, *The Queen*.—H. G.

THE PARKS OF LONDON.—No. 3.

VICTORIA PARK.

THE brilliant display of bedding-out that usually characterises this Park during the summer season has this year fully maintained its reputation. Tastefully designed carpet beds, fine masses of *Pelargoniums*, *Coleuses*, and similar plants, have produced a magnificent show of colour, while borders of miscellaneous hardy plants have contributed to the general brightness; and even now, when the beauty of the beds in other portions of the Park is waning, the "mixed border" still forms one of the chief features. Subtropical gardening is also represented, so that there are examples of each style of bedding, and all are well executed.

That assemblage of beds, commonly known as "the Prince of Wales' Feather beds," constitutes the most attractive portion of the display to the majority of visitors. There the dazzling colours derived from scarlet, salmon, or pink *Pelargoniums* have been judiciously combined and contrasted with the deep shades of *Iresine Lindenii* and *Coleus Verschaffeltii*, the pure white of *Centaureas* and the soft lavender blue of *Ageratums* resulting in a most satisfactory effect. The *Pelargoniums* have been exceptionally fine, but they are now past their best, though the *Coleuses* and other plants employed continue attractive. What are chiefly remarkable are the neatness of the general appearance—the plants when they require it being kept well pinched in so as to form regular lines or compact clumps—and the peculiar richness of the colours in the foliage and flowers. The *Iresines* and *Coleuses* are especially noticeable in this respect, and several large beds of the latter are models of exactness, the surface being as even as if it had been mown. The *Centaureas*, too, are as white as possible, and the *Ageratums* have flowered very freely. In addition to the numerous beds containing the plants above indicated, there is a few on each side of the central design and near the path, which are tastefully planted as carpet beds; these are of circular and oblong form, the ground being composed of *Mentha Pulegium gibraltarica*, upon which are raised star-shaped and other panels with a similar ground neatly edged with small plants of *Echeveria secunda glauca*, lined with *Alternanthera paronychioides major*, and containing small clumps of *A. amœna*. The simplicity of the designs, the few varieties of plants employed, and the brightness of the *Alternantheras*, render these beds very neat and pleasing.

Proceeding farther to the east we come to several carpet beds of great beauty, occupying a sheltered position near that portion of the Park devoted to subtropical plants. The one that first attracts attention is extremely long and narrow, of serpentine form. This is edged with *Echeverias*, and has a ground of *Mentha*, from which rise numerous small panels of *Alternantheras*; single specimens of *Sempervivum tubulaforme* and *Echeveria metallica* with other similar plants are dotted at intervals in the centre. Right and left of this bed are beds of moderate size that might be described as hexagons, of which the sides have been converted into semi-circles, with the convex side turned outward. These are some of the best and most effective of any we have seen this year. They are margined with *Echeverias*, next to which is an edge of *Alternanthera amœna*, and then a similar line of *Mesembryanthemum cordifolium variegatum*, both these extending quite round the bed. The ground is composed of *Herniaria glabra*, as close and dwarf as if it had been rolled, and of a most intensely dark green tint; upon this is raised in the centre a star-shaped panel margined

similarly to the outer edge of the beds, and containing lines of the *Golden Pyrethrum* and dense clumps of *Alternanthera versicolor grandis*. The other portion of the beds is also relieved by small panels of similar design. The peculiar distinctness of these beds is remarkable; the lines of *Echeverias* contrasting so strikingly with the *Herniaria* brings out the design in bold relief.

Of the subtropical department little need be said. *Cannas*, *Ricinus*, *Ficus*, *Tobacco Plants*, and *Wigandias* are well represented, some beds of the latter being exceptionally fine. All are in most vigorous health and very satisfactory. One feature, however, deserves notice—viz., a large bed of single *Dahlias*, which for brightness could scarcely be surpassed. It proves with what advantage these now comparatively neglected varieties can be employed in gardens. The borders of hardy plants have been already referred to, and it only remains to note that their principal attractions now are the *Dahlias*. These are freely employed; a good selection of colours has been made, and the white varieties are sufficiently numerous to relieve the brighter tints. In one rather dark position—namely, that occupied by the carpet beds last described—the border in front of the shrubs is almost exclusively devoted to white *Dahlias*, which serve to lighten the slightly sombre effect considerably, and do not detract from the brilliancy of the other beds, as many colours would have done. As regards the general condition of the Park, it is as satisfactory as it has always been under Mr. McIntyre's superintendence.

HYDE PARK.

The aristocratic Park of the metropolis as usual contributes its share to the pleasure and instruction of that portion of the public which is specially interested in that form of decorative gardening known as bedding-out. The chief display of colour, indeed nearly all the beds devoted either to carpet designs or the ordinary style, extend in one long series between the Park Lane boundary and the carriage drive. There, owing to the large number of *Pelargoniums* employed and the satisfactory manner in which they have flowered this season, the effect has been exceptionally brilliant. The majority of the beds are edged with *Lobelias Blue Stone* or *pumila magnifica*, *Golden Feather*, and the variegated *Pelargoniums Albion's Cliffs* or *Princess Alexandra*, the centres being occupied with scarlet, pink, and white *Zonal Pelargoniums*. It is well known that the formality of such bedding and the repetition of bright colours employed constitute its chief defects, and consequently it is pleasant to observe some attempt to vary the prevailing monotony. This is shown in the introduction of a number of what are termed "mixed beds"—namely, such as have the centre composed of two or more distinct kinds of plants in alternate lines, which either by the harmony or contrast of their colours are suited for association. One combination, of which examples are frequently seen, is that of planting a golden-foliaged variety of *Pelargonium* with one of the bedding *Violas* in a circular bed near the Marble Arch end of the Park. The former is represented by *Verona* and the latter by *Viola Blue Bell*, which contrast very well, especially as they are relieved by the margin of *Pelargonium Albion's Cliffs* and *Lobelia Blue Stone*. Another bed in the same style has, however, a very different effect, and is almost more peculiar than beautiful. This is composed of *Crystal Palace Gem Pelargonium* and *Amaranthus melancholicus ruber*. A third example contains the variegated *Pelargonium Miss Kingsbury* with *Perilla nankinensis*, which also has a curious effect, but rather more pleasing than the one previously mentioned. As a slight variation of the first a long bed is planted with *Pelargonium Aristo* and the same *Viola*, but this does not seem to have proved very satisfactory, for the *Viola* has almost hidden its companion. Perhaps the most satisfactory of all is a bed comprising an unnamed variegated *Pelargonium*, probably *Princess Alexandra*, and *Iresine Lindenii*. Both have thriven well, and the colour of the *Iresine* is particularly rich. A neat but not very showy effect is produced by the combination of *Pelargonium Princess Alexandra* with *Ageratum Tom Thumb*. These "mixed beds" are the chief features deserving of notice, the majority of the others being in the ordinary style. It is perhaps worthy of note that, in addition to the edging already referred to, many beds are margined with *Lobelia Omen* and *Pelargonium Robert Fish*; both have done very well; but the *Lobelia* has been uncommonly fine, the purplish mauve coloured flowers having been most freely produced. A clump of *Abutilons* (*A. Thompsonii*), *Lantanas*, and *Amaranthuses* is fairly satisfactory, but it is questionable if the two latter might not have been omitted with advantage, for they scarcely improve the appearance of the *Abutilons*, which have their foliage brightly coloured. The carpet designs are not very numerous, but fairly characteristic. The one which most attracted our attention was neat and effective, being devoid of that intricacy which too frequently marks such beds. It was only 4 or 5 feet in diameter, four-lobed in shaped, edged with *Echeveria secunda*

glaucous and *Mesembryanthemum cordifolium variegatum*. The ground is of *Mentha Pulegium gibraltarica*, in which are dotted single plants of *Pachyphyton bracteosum*; in the centre is a square of *Alternanthera amoena* margined with *Kleinia repens*—a very pretty and informal design.

In other portions of the Park, particularly in "The Dell" and near Rotten Row, are imposing clumps of *Cannas* and *Ricinus*es, with a few single specimens of Palms and *Musas* judiciously

situated to impart a subtropical appearance to these positions. The Park has been greatly admired throughout the summer.

RUDBECKIA NEUMANNI.

FEW amongst hardy herbaceous plants are more bright and effective during the late summer months than this fine *Rudbeckia*. The flowers are of a bright deep yellow, and are rendered



Fig. 57.—*RUDBECKIA NEUMANNI*.

the more ornamental by the prominent dark central florets. The plants grow with great freedom, and flower most profusely during a period of six weeks. It varies in height according to the nature of the soil in which it is grown, and the dryness or wetness of the season. I have admired it in masses about 18 inches in height and more in diameter, and have seen it even more imposing when more than twice that height. For the back of herbaceous beds,

and for the front, between the shrubs, of shrubby borders, this plant is equally telling, and should be grown in all gardens where such plants are cherished.—J. D.

THE COMMON HEMP.—This is a valuable plant for its foliage in summer. We have seen little of late years, but in the Cambridge

Botanic Garden along a border are plants 8 and 10 feet high, which have a graceful effect from the mass of feathery branches. It is astonishing how few there are who know what it is.—L.

PLANTING ROSE TREES.

Now that the season for this work is just upon us it would be well if a matter about which there seems to be some doubt could be cleared up. It is generally admitted that standard Roses do best when planted about 5 or 6 inches deep, and that Manetti Roses should be so planted that the junction of bud and stock shall be about 2 inches below the surface of the ground; but when we come to deal with dwarf Roses on the Briar there is a diversity of opinion as to what depth they should be planted. Canon Hole, their great champion, speaks of the junction of the bud with the stock being below the surface, so as to give the Rose a chance, as when on Manetti, of throwing out roots of its own. Mr. Prince of Oxford, a great trade grower of seedling Briar Roses, does not refer to the point of budding at all, but simply says that his Roses should not be planted too deeply, but at the same depth as previously; while some other nurserymen, after speaking of Manettis being planted so as to cover the budding, say that such planting in the case of dwarfs on the Briar would be almost if not quite fatal.

As Roses on this stock are undoubtedly becoming more and more popular it is important that something positive should be known upon the point of planting. If it be true that it is necessary to keep the budding above the surface of the earth it will be best to grow Manettis; as with them, if the Rose should be killed down to the ground, it will spring up again from the protected buds below ground, while nothing but the stocks of Briar Roses will be left alive. Perhaps some of your readers have tried dwarfs on Briar planted both ways, and will give us their experience. Is there any difference in the cases of seedling Briar Roses and those on Briar cuttings? I have a number of Briar cuttings budded lately which I should like to move this autumn. Will it be safe to do so?—J. B.

THE INTERNATIONAL POTATO EXHIBITION, CRYSTAL PALACE.—SEPTEMBER 22ND AND 23RD.

THIS was the finest Exhibition of Potatoes that has ever been held in England, both as regards the number of the competitors and the quality of the tubers. There were upwards of a hundred exhibitors, who staged nearly four hundred collections, including about 2500 dishes, and representing more than 22,000 tubers—a magnificent display. The competition was generally keen, and the majority of the tubers were characterised by a remarkably even and clean appearance. The arrangements were all satisfactorily conducted by Mr. J. McKenzie, the Secretary.

In the open class A, for twenty-four distinct varieties, six prizes were offered of the total value of twenty-eight guineas, the first, second, and third being respectively ten, seven, and five guineas each. The President of the Society, the Lord Mayor of London, contributed the first prize; Messrs. James Carter & Co., 237, High Holborn, the second and third; Mr. Charles Turner, Slough, the fourth; and G. R. Bengough, Esq., Brixton Road, the fifth; the remaining award being provided by the Society. This was the chief class of the Exhibition, the competition being close, and the exhibits of good quality generally. Seventeen collections were staged. The premier award was secured by Mr. Richard Dean, Ranelagh Road, Ealing, with an even and handsome collection of clean tubers. The varieties were Snowflake, Grampion, White Emperor, Beauty of Hebron, Cosmopolitan, Early Ohio, Climax, Mr. Bresee, Covent Garden Perfection, Vicar of Laleham, Emerton's Advance, Radstock Beauty, International Kidney, Heather Bell, Early Market, Triumph, Lord Mayor, Garibaldi, Magnum Bonum, American Purple, Bedfont Prolific, Manhattan, Schoolmaster, and Blanchard. The second prize was secured by Mr. W. Ellington, West Row Gardens, Mildenhall, with a fine collection, including the following varieties, in excellent condition:—Manhattan, The Mammoth, Pearl, Vicar of Laleham, Blanchard, Breadfruit, Trophy, Beauty of Hebron, and Porter's Excelsior. Mr. John Reid, Ayrshire, N.B., was third with neat examples; E. Twopenny, Esq., Sittingbourne (Mr. James Matthews), was fourth; J. R. Wigram, Esq., Salisbury (Mr. R. West), was fifth; and Messrs. Lott & Hart, Faversham, sixth.

Class B, for eighteen varieties, was open only to gentlemen's gar-

deners, and the exhibits were judged by three non-competing gardeners. Messrs. Sutton & Sons, Reading, offered the six prizes in this class, which amounted to twenty-two guineas, the first prize being seven guineas. Twenty-seven collections were exhibited. The best collection was from the Duke of Marlborough, Blenheim, Oxon (Mr. W. Crump), and included the following varieties in superb condition:—Snowflake, Grampion, Mona's Pride, Schoolmaster, Bedfont Prolific, Radstock Beauty, St. Patrick, Woodstock Kidney, Webb's Surprise, International Kidney, Vicar of Laleham, Beauty of Hebron, Blanchard, Rector of Woodstock, Triumph, Porter's Excelsior, Early Vermont, and King of Potatoes. The second prize was secured by Mr. J. Millen, Hampstead Park Gardens, Newbury, with even samples clean and healthy; the best were Snowflake, Radstock Beauty, Grampion, Mona's Pride, Blanchard, Defiance, The Washington, and Porter's Excelsior. Mr. John McIntyre, Woodridge Gardens, Darlington, was third with small but wonderfully even clean samples, Oneida and Vicar of Laleham being especially noteworthy. Mr. J. Matthews was fourth; Mr. James Harper, Monaltrie Gardens, Ballater, N.B., was fifth; and Mr. W. Sedge sixth.

All the remaining classes were open to any exhibitors. Class C was for twelve varieties, and five prizes were offered, the first by Mr. Alderman Hadley; the second by James Abbiss, Esq.; the third by L. Fawell, Esq., 4, St. Paul's Churchyard; the fourth by Messrs. Kerr & Fotheringham, Dumfries; and the fifth by the Society. Twenty-six collections were staged. First honours were awarded to Mr. William Kerr, Dumfries, N.B., for a satisfactory collection including Schoolmaster; Triumph, excellent; Beauty of Hebron; Trophy, very fine; Magnum Bonum, Salmon Kidney, Mammoth, Pearl, Grampion; Porter's Excelsior, even and neat; Manhattan, Pride of America, and Oneida. The second prize was secured by the Rev. J. Bramah, Faversham (Mr. G. Akhurst); the best of his varieties were Beauty of Hebron, Early King, Beauty of Kent, Climax, and Trophy, all of good size and shape. Mr. T. Pickworth, Loughborough, was placed third, Mr. W. Crump fourth, and Mr. J. Millen fifth. Other good exhibitors were Col. Cartwright, Byfield (Mr. J. Hughes); Mr. W. Finlay, Wroxton Abbey Gardens, Banbury; and J. R. Wigram, Esq., Salisbury (Mr. R. West).

In class D, for six varieties, the first three prizes were given by Messrs. H. & F. Sharpe, Wisbech, Cambridgeshire; Messrs. Barr and Sugden, Covent Garden; and William Holloway, Esq., 5, St. Paul's Churchyard respectively; the funds of the Society providing the two other prizes. Thirty-nine collections were exhibited. The chief position was secured by Mr. W. Kerr with fine dishes of Schoolmaster, Grampion, Pride of America, Vicar of Laleham, Porter's Excelsior, and Trophy. Mr. Akhurst was second with Magnum Bonum, Brownell's Superior, Beauty of Kent, Schoolmaster, Early Rose, and International Kidney, all clean and good. Mr. R. Dean was third; Mr. W. Finlay was fourth; and Mr. H. Minchin, The Nurseries, Hook Norton, fifth.

In Class E, for four varieties, two coloured and two white, P. McKinlay, Esq., and James Crute, Esq., offered the first and second of the four prizes. There were twenty-eight entries. The winning collection was from J. Friend, Esq., Margate (Mr. F. Miller), with Jackson's Improved, Yorkshire Hero, Vicar of Laleham, and Blanchard, clean, fresh, even, and of good size. Mr. J. Millen was a good second; Mr. W. Kerr third; and Messrs. Lott & Hart fourth. Messrs. Hooper & Co., Covent Garden, contributed the four prizes in class F for four distinct new varieties in commerce that had not been offered to the public previous to 1879. There were twelve competitors. The most successful exhibitor was Mr. F. Miller with Vicar of Laleham, Beauty of Kent, Pride of America, and Woodstock Kidney, all in good condition. Mr. R. Dean was second with Avalanche in the place of Pride of America in the previous collection, the other varieties being the same. Mr. F. Matthews was third with Radstock Beauty in place of Vicar of Laleham in the first-prize collection. Mr. Peter McKinlay, Headly Lodge, Penge, was fourth with Matchless in the place of Woodstock Kidney. The Amies Chemical Manure Company, 79, Mark Lane, London, also offered four prizes in Class G for one round and one kidney variety. Twenty-eight collections were staged. Mr. W. Kerr was first with Schoolmaster and Pride of America, both excellent. Mr. J. Millen was second with Blanchard and Magnum Bonum. Mr. John Reid third with the latter variety and Climax; and Mr. R. Dean fourth with International Kidney and Blanchard.

The remaining classes were all for single dishes, the three prizes in each class being contributed by firms of seedsmen and nurserymen. In Class H, for any white round variety, the prizes were given by Messrs. Daniels Brothers, Norwich. Twenty-four collections were staged. Mr. W. Kerr was first with Schoolmaster, very even and clear; Mr. R. West second with the same variety; and Mr. J. B. Hall, Gillingham, Kent, third with Early Goodrich. In Class I, for any coloured round variety, Messrs. Harrison & Sons, Leicester, contributed the prizes. There were twenty-eight entries. Mr. R. Dean was first with Vicar of Laleham, very neat; Mr. F. Miller was second with Red Emperor; and Mr. R. Ironside, Ingleston, Inverness, N.B., was third with Grampion, very fine. For any white kidney variety Messrs. Thomas Gibbs & Co., Piccadilly, London, were the prizewinners. Twenty-six dishes were exhibited. Mr. James Counce, Garstang, Lancashire, were first with International, handsome; Mr. J. Miller, second with Myatt's Ashleaf; and Mr. R. Ironside third with International Kidney. For any coloured kidney variety Mr. Richard

Dean, Ealing, offered the prizes. Twenty-five dishes were staged. Mr. R. Dean was first with Mr. Bresce; Mr. James Caunce was second with Fenn's Bountiful; Mr. C. Osman, Sutton, Surrey, being third with the same variety. Messrs. Sutton & Son, Reading, gave the prizes in Class M for a dish of Suttons' Magnum Bonum; and in Class P, for a dish of Suttons' Woodstock Kidney, there were fifty-three competing collections, all of good quality. Mr. W. Kerr was first with samples of moderate size, very even and clean. The Hon. Mrs. Hay, Market Lavington, Wilts (Mr. James Lye), was a close second; and Mr. W. Ellington third. For the best dish of "Schoolmaster" in Class N, Messrs. Webb & Sons, Wordsley, Stourbridge, were the donors of the prizes. There were twenty dishes staged. Mr. William Kerr was first with handsome clean tubers; Messrs. Lott & Hart with good examples but not so clean; Mr. Henry Gibbs, Ightham Court Gardens, Sevenoaks, being a good third.

Messrs. John Laing & Co., Forest Hill, offered prizes for the best dish of any new variety. Eighteen dishes were exhibited. Mr. Peter McKinlay was first with Wiltshire Snowflake, a round white variety raised by Mr. Lye, Lavington Hall, Wiltshire. Mr. R. Dean was second with Lord Mayor, a seedling from Extra Early Vermont crossed with Early Market, a second early variety said to be of fine quality and free cropper. C. Eyre, Esq., Newbury (Mr. Ross), was third with Dux, a seedling round variety from Victoria. For the best dishes of Suttons' Woodstock Kidney Messrs. Sutton offered the prizes. There were thirteen entries. The first prize was secured by Mr. C. W. Howard, Canterbury, with fine examples, Mr. Henry Gibbs followed closely, and Messrs. Lott & Hart were third. All the tubers were of excellent quality, even, and of good size.

Miscellaneous exhibits were numerous. Messrs. Sutton & Sons, Reading, had a very large collection, occupying a space of 200 square feet, over one hundred varieties being represented. Messrs. James Carter & Co., High Holborn, exhibited heaps of Magnum Bonum and Scotch Champion Potatoes, including samples of the latter variety grown in twenty-four English counties. Messrs. Harrison & Son, Leicester, contributed a number of dishes. Mr. Charles Turner, Slough, had some good examples of Schoolmaster. Messrs. Webb & Son, Stourbridge, also sent a number of dishes, International Kidney being especially remarkable for its size; the fine variety Schoolmaster was well represented. Messrs. James Veitch & Sons, Chelsea, sent about forty dishes of fine Potatoes, and about eighty dishes of Apples. Messrs. Charles Lee & Son, Hammersmith, sent a number of good examples. Messrs. Daniels Brothers, Norwich, had a handsome collection of a hundred varieties of Potatoes in fair condition.

THE CULTURE OF MIGNONETTE.

MIGNONETTE is a general favourite on account of its delightful fragrance, but it is seldom seen in good condition except in market-growing establishments. It is of easy culture, and within the reach of everybody. The present is the best time to sow the seed for raising plants for spring blooming. The most useful-sized pots are 48's, and the most suitable compost two parts of turfy loam and one of decomposed cow manure, with a sprinkling of old lime rubbish. Place over the crocks about 2 inches of decayed manure (as the Mignonette delights in a rich compost), and fill the pots with the above compost; press the soil in firmly, sow the seed rather thinly, and sprinkle a little soil over it, plunge the pots in a cool frame in ashes within 3 inches of the glass, supply water rather sparingly till the seed germinates, after which the plants should have very little water. Thin the plants out well, retaining about six or seven in each pot. Ventilate freely night and day to keep the plants sturdy, leaving the lights off altogether on all favourable occasions. Discontinue watering from the middle of November till the end of February. This is the secret of success, as if the plants are watered through the winter they become weakly and drawn, and the result is never satisfactory. Do not mind the plants flagging a little, which sometimes they will do when the sun is rather strong. About the first week in March they will require to be watered rather more, never allowing them to become dry; ventilate freely, and when they show bloom water with liquid manure. Place a neat stick to each plant, so that the air may circulate well amongst them. —FLORIST.

THE POTATO DISEASE.

SOME thirty years since I was led to believe that the disease was caused by an excessive rainfall. Observation and experiments in growing the Potato deepened this belief, but how it was done puzzled me for years. My theories were overthrown by the stern logic of facts. Still I was growing nearer the truth; and now I think I have approached it so nearly, that at least it is worthy of a place in your Journal and the consideration of your able contributors. You will, I trust, permit it to be freely and fairly discussed.

I hold that the fungus is a result, not a cause. The cause is too much wet at a particular time. The disease of the Potato is

induced thus: During the growth an abundance of rain gorges the tissues with sap, and at the same time the densely saturated air prevents effective respiration to such an extent as to rupture the organs of the plant sufficiently to hinder it from accomplishing its work of properly forming and ripening its tubers. At present this is only an induction, but it enables me to explain all the developments of the disease that have come under my observation, and it is, I think, capable of practical demonstration.

It may be interesting and perhaps helpful if I state how I was led up to this theory, and why I think it capable of proof. The very close planting which used to be practised more than now, or overcrowding, was an early-formed theory of the disease, but it had to be given up, not, however, until it had taught me that it had very much to do with its cause. I found that good drainage, room for free circulation of air and access of the sun's rays, were essential to sound tubers. In short, Potatoes have been improved or abused until they claim sensible treatment. Still, sensible treatment, careful attention, and selection of varieties did not dispose of the disease, but it did the next best thing—it mitigated it very much, and it led me to conclude that if I could limit the rainfall I could conquer the disease. I grew them under glass, and remembering that it was an inhabitant of a dry climate I supplied water judiciously. The result was perfectly sound Potatoes. This has been done on a small scale for several years with the same result. This year I planted partially diseased Potatoes and watered with liquid from a well, and had no sign of the disease.

These facts have led me to infer and state that I believe the Potato can be grown to demonstrate the cause and all the consequences of the disease we have observed. I should prefer, however, to treat of that in a future issue.—AN INTERLOPER.

MR. LUCKHURST (page 258) states that the plague spot of the Potato disease appears first and the fungus invariably afterwards. I am by no means indisposed to agree with Mr. Luckhurst in some of his ideas on the subject on which he writes, but I would be glad to be informed if this statement is true, or admitted by those competent to investigate the matter. If the disease appears in the tuber before the fungus presents itself, that is quite sufficient to prove that the latter has nothing to do with the disease. Will Mr. Luckhurst kindly say where he derives his information from? and oblige—A READER.

I AM very glad our "author" has modified his former statement that half the Potato disease was caused by the ignorance and apathy of cultivators. Only a cultivator of comparatively limited experience could have entertained an idea so erroneous, and certainly a writer who can only support his views on this subject by extracts from newspapers will not be regarded as a practical teacher by practical men. I am asked to read our "author's" book more carefully. I have read it, and I find the depth of planting is qualified on one page but not on another. As an historical compilation the work is interesting, but the writer does not deny that only one-tenth of it is founded on his own practice, the nine-tenths being a record of the work of other people—a curious exemplification, surely, of the apathy and ignorance that has been applied to cultivators generally!

It is not a practical book at all. There is not a cultural suggestion in it that has not been tried, and certainly one "recommendation" has been found wanting—namely, "cutting" off the tops of the plants for averting the disease. Pulling them off has been of great benefit, yet this is not mentioned; cutting them off is simply labour in vain. Neither is the theoretical plan for the extinction of the disease of any practical value. Even if the Government were to take possession of the Isle of Wight and the Isle of Man and prohibit the culture of Potatoes there for a year by act of Parliament, as is recommended, no good would result; at least Mr. Worthington Smith says it would not, and I presume no one in the Queen's dominions can speak with more authority on the Potato fungus, its nature and movements, than he can. Let us see what he says in one of his latest contributions to the *Agricultural Gazette*, from which I extract the following:—

"As for stamping out the murrain, or isolating cultural experiments to an island in the sea a short distance from the shore, any such attempt would be utterly futile. Spores are present everywhere, and can no doubt be carried through the air across a sea or ocean as readily as over a hedge. Spores everywhere sail with the wind, and at the same speed. Nothing is better known than the descent of spores, pollen, and other minute organisms on to ships in mid-ocean. If Potatoes were taken into an island in the middle of the South Pacific, or transported upwards for miles into the air, or submerged for years in a river, they would yet be liable to contamination from the *Peronospora*, for the spores of the

fungus are everywhere. The resting spores have been kept alive for three years simply in pure water, and they germinated after this time. In fact, the only way to satisfactorily see the ordinary spores germinate is in water. I have for many years been in the habit of constantly using the microscope, and I have found the spores of the Potato fungus on the most diverse objects, and from the most diverse positions, showing that the spores must have been blown for long distances in every direction. Now, suppose the statement to be correct (although it is not correct) that the spores of the Potato fungus are not carried far by the wind, are there no other means of dissemination at hand than disturbed air? Suppose a fox or hare runs through a field of infected plants, and then goes off to non-infected districts, he will carry tens of thousands of spores in his coat. Suppose a bird alights amongst infected Potatoes, when that bird flies off he will carry tens of thousands of spores in his wings, and discharge them into the air as he sails over the country or the sea. The innumerable beetles, flies, moths, butterflies, and grubs found amongst Potato plants commonly swarm with spores. When a farmer goes into his infected fields he inhales the spores into his lungs, and when he eats his fruit from the walls of his kitchen garden he takes the spores into his stomach. From the above it will be clearly seen that any idea whatever founded on stamping out, can only be a wild dream."

The above will at least have as much weight as extracts from the daily press, written possibly by penny-a-liners who have no practical acquaintance with the subject on which they write so glibly. I have at the special invitation of the "author" read the book more carefully, and, I may add, have enjoyed the reading of it, but I much fear I shall not be a sack of Potatoes better for all it contains. Still, paradoxical as it may appear, I consider it cheap at a shilling.—A LINCOLNSHIRE POTATO GROWER.



FRUIT HOUSES.

Vines.—Late Grapes should now be ripe, and they will then keep satisfactorily, but if there is any doubt as to their maturity employ fire heat till they are fully ripe. Thin-skinned varieties of Grapes such as Black Hamburgs, &c., will at this season require examining frequently, removing all decayed berries. Damp should be expelled and prevented as much as possible by occasional fire heat by day with free ventilation; night firing should be avoided. Intermediate houses will now be nearly cleared of their crops, and if the wood is not ripening freely fire heat should be employed in the day, but turned off at night. Divest them of laterals down to the principal buds, and check all lateral growths by close pinching. Similar remarks apply to young Vines not having borne fruit but which are expected to fruit next season, taking care in the removal of the laterals not to injure the old leaves. Give every attention to young Vines that were planted this spring; keep the foliage clean, remove all laterals, and maintain a warm atmosphere with a free circulation of air until the canes are thoroughly ripe. Vines in pots intended for early forcing should now be cut back to a length of 6 to 8 feet, placing the plants in a cool, dry, airy position for a season of rest.

Peaches and Nectarines.—When the fruit has been gathered in the late houses the next important object is to secure the ripening of the wood. This can best be done by thinning out unnecessary shoots in addition to those which have borne fruit, the latter being cut out to a successional shoot at the base, and the former being thinned wherever overcrowded. In the case of strong vigorous growths it may be necessary to accelerate the ripening of the wood by gentle fire heat, especially in dull weather, at the same time admitting air freely. Some of the late Peaches, as *Desse Tardive*, *Walburton Admirable*, *Princess of Wales*, &c., in cold localities will require gentle fire heat to ripen them thoroughly. An occasional syringing will be necessary for trees from which the fruit has been gathered. Trees not in a satisfactory condition should, as soon as the wood is mature, be partially or wholly lifted. If this be done whilst the trees are in leaf the house should be shaded before commencing operations, and the old border made thoroughly moist. In removing the old soil com-

mence at the point most distant and work towards the trees, and when it has been cleared away the exposed roots should be drawn aside, damped, and covered with mats whilst the drainage is being attended to; this should consist of 9 inches thickness of rubble, and be covered with turves grass side downwards. Fill in with strong loam, and if calcareous it may not be necessary to add lime rubbish, though a tenth of that material will be beneficial in most cases, and a twentieth of charred refuse. This should be rammed very firmly; and the roots, after having any strong fibreless portions shortened with a knife, must be spread out evenly over the bed, covering them with soil as they are laid out, and when all are covered give a good supply of water at a temperature of 80° to 90°; the remainder of the soil may then be placed on the roots, but they should not be covered deeper than 6 inches. The shading must remain on if the weather be bright, and afford ventilation by the top lights only, syringing the foliage morning and afternoon until it is seen that the roots are working in the fresh compost, when the shading may be removed and the house opened. The trees will rest and be in capital order for forcing when required. They rarely cast their buds after being lifted, and the flowers set better; indeed the operation of lifting is very commendable but too little practised. Trees in good health will not require lifting, but it is a good practice, especially for old trees, to remove the soil from the surface and supply fresh compost, as the roots will benefit by it, adding to their vigour and the size and quality of the fruit produced. When Peaches and Nectarines are forced early in pots they must now be attended to in top-dressing or repotting; these should be done whilst the trees are in leaf, so that fresh rootlets may be produced before the leaves fall. For either purpose the loam must be strong and calcareous, sandy loam being of no use. Should the trees, from having been in pots some years, require renovation, they may be turned out and the ball reduced with an iron prong, returning to the same size pot or one that will admit of an inch or two of additional fresh compost. The soil cannot be rammed too firmly. The trees should be retained under glass until the foliage is mature, when they may be placed outdoors.

ORCHARD HOUSE.

It is of the greatest importance that the wood of all fruit trees be properly ripened, and as soon as the fruit is gathered all superfluous shoots should be at once cut out, so as to admit to the remaining shoots and spurs as great an amount of light and air as possible. Any trees that have been placed outdoors and have not ripened the wood satisfactorily should be returned to the house, in order that the ripening process may be accelerated by a comparatively dry atmosphere. The ventilators should be open night and day, and occasionally syringe trees that have borne fruit to cleanse the foliage of dust and insects. Fig trees in pots showing a good second crop of fruit may be removed to a house or pit where they can be assisted with artificial heat, and be well supplied with liquid manure to enable them to swell off and ripen the fruit. Most other kinds of fruit will have been gathered except the late varieties of Peaches and Plums, and these should at once be potted if necessary, not waiting, as is too often done, until the leaves have fallen; but by potting as soon as the fruit is gathered active roots will be abundant before the leaves fall.

PLANT HOUSES.

Stove.—The first batch of Poinsettias should now be placed in the stove, where they can be accommodated with a temperature of 60° to 65° at night, keeping them near to the glass and feeding with liquid manure. These should be the strongest, and if well attended to they will make a fine display. The weakest plants should be brought on slowly in a temperature of about 55° at night, affording water only to prevent the loss of the lower leaves; they will flower later and be very useful. *Euphorbia jacquiniæflora* must not be allowed to remain too long in a cool house or the roots will perish, 50° to 55° being quite low enough, care being taken not to supply too much water. *Centropogons* should only have sufficient water to keep the foliage in good condition, feeding with liquid manure, as this will not only promote the production of large heads of bloom, but will induce a strong second flowering from the upper joints after the principal terminal growths have flowered. Some plants of *Plumbago coccinea* *superba* and *P. rosea* should be kept at the coolest end of the stove,

so as to secure a succession of flowers; the earliest-flowered will start from the upper joints and flower from each. *Sericographis Ghiesbreghtiana* must be in a moist warm atmosphere and a light position to induce free flowering.

The attractive plant *Lasiandra macrantha* produces its beautiful purple flowers in clusters from the points of the shoots at this time of year onwards. Being of straggling habit the plant should be treated as a climber, and though its flowers are of short duration they are produced in great numbers. It succeeds in peat and loam in an intermediate house or cool stove. *Lasiandra macrantha floribunda*, though dwarfer and free flowering, cannot be compared with the species when treated as a climber. Larger stove plants, such as *Ixoras*, that have flowers to open, should be preserved as long as possible, not syringing them overhead more than is necessary to keep down insects, as too much moisture at this season may cause the flower buds to drop. *Dipladenias* and *Allamandas* that have many flower buds should only have sufficient water to keep the plant from flagging. *Bougainvillea glabra* and *Rondeletias* should be treated similarly, and they will afford very acceptable flowers for some time to come.

Amaryllises.—Beautiful free-flowering plants as these are, they do not receive the attention they deserve. Occupying little space and succeeding with fair treatment, they are worthy the notice of all who have a house kept at stove temperature or an intermediate house. They flower over a lengthened period. *Hippeastrum pardinum* flowers with regularity in the autumn and winter, and many early in the year. All *Amaryllids* require a long season of rest, not "drying off," but such as will thoroughly ripen the growths and induce flowering. Both the deciduous and evergreen (*Hippeastrum*) forms will ere this have completed the growth and will need rest. Gradually withhold water, not at any time allowing them to become dust dry, but supply sufficient water to keep the soil moderately moist, and there will be a marked difference at the time of flowering between the plants so treated and those kept as "dry as dust" through the winter. The deciduous forms may be wintered in a temperature of 50°, but the others should be kept a little warmer, 55° being sufficient. *Urceolina aurea* requires similar treatment to *Amaryllis*, and though it is deciduous must not be allowed to become dry at that season, as it throws up its flower scapes when leafless, and usually in October, its pendant yellow green-tipped flowers being very beautiful. Roman Hyacinths, Paper White and Double Roman Narcissus, that were potted some weeks ago may, as soon as they are rooted, be moved into heat to have them in flower early, placing near the glass, so as to render them as dwarf as possible.

Aquatic plants—though interesting, easily grown, and flowering over a lengthened period—are seldom seen, and apart from the beauty of the flowers on the plants they are very useful for cutting for the base of stands for table decoration, particularly *Nymphaea cærulea*, *N. cyanea*, *N. dentata*, *N. Devoniana*, and *N. rubra*. *Nelumbium speciosum*, *Limncharis Humboldti*, *Pontederia cordata*, and *P. crassipes* are very pretty, but *Nymphaeas* are the best. Good turfy rather strong loam, 12 inches in depth, will answer their requirements, and a little more than that depth of water. A tank about 12 feet in diameter will be sufficient for a number of varieties.

Orchids.—Now the weather has become cooler the night temperature may be reduced 5°, a high night temperature being less beneficial than a low one. Regulate the moisture according to the requirements of the plants. As many plants have now completed their growth water must be given very sparingly, being careful not to damp the crown of the plants. Plants on blocks will still require syringing, and those in a growing state will need to have their roots well moistened every morning either by syringing or dipping. Those having the growth completed will require damping every two or three days, the cultivator being guided by the state of the atmosphere the plants are grown in. It is natural for some Orchids to grow now. These should be placed in the most favourable part of the house, and encouraged to grow without check. Air should be admitted according to the state of the weather; when calm and mild plenty of air should be admitted. Many *Oncidiums* and *Odontoglossums* are growing freely, and should have plenty of moisture. They will

need careful watching for thrips, which soon seriously injure the young shoots. Fumigating on three or four alternate nights moderately will destroy them. Cease damping the floor of the *Cattleya* house after the middle of the day. Delay no longer the thorough cleaning of the houses inside and out, washing the rafters and every particle of wood with hot water and soft soap, and the glass with water, it not being possible to have the glass too transparent nor the house generally too clean.

NOTES ON VILLA AND SUBURBAN GARDENING.

KITCHEN GARDEN.

Tomatoes.—The very general heavy rains will have the effect of fast spreading the disease, which has already been very destructive in some districts. The only way to save the whole or part of the crop is to cut off the bunches of all fully grown fruit, whether changing colour or not, and to hang them up to ripen in some warm position. Where plant stoves are available they are suitable, but those who do not possess a heated structure had better hang the fruit in the kitchen. This early cutting of the fruit will entail the sacrifice of many that are only half grown, but probably if the crop is left to ripen naturally the whole will be lost, so rapidly does the disease spread.

Make another sowing of the hardiest varieties of Lettuce to stand through the winter, in case the plants from the first sowing become too large to withstand the frost. If the first sowing of Cauliflower is a failure sow in boxes in a cold frame, and prick out young plants produced either in boxes or in a cold frame in which they are to be wintered. Every attempt should be made to secure Cauliflower plants in the autumn, as in most gardens they cannot well be dispensed with, as they are required to keep up the supply when the late Broccoli are finished. Turnips should be thinned gradually, as they have enemies at all their early stages of growth, and if thinned to the proper distance in the first instance blanks very probably will occur. A dusting of soot and lime will keep off birds and flies, and, during showery weather especially, frequent dustings of the same mixture are necessary in some districts to ward off the fly, which deposits eggs in the hearts when they are "bulbing," followed by a grub which ultimately destroys the Turnips. Thin finally to about 10 inches or 12 inches apart if good-sized roots are required. A sowing made at this time will give a crop of greens if nothing else. Thin late-sown Carrots to about 4 inches apart. Earth up Celery when necessary, selecting a dry day for the operation. Draw earth up to the stems of Broccoli and winter greens in order to steady them, and this will also help to protect them. To blanch Leeks earth up as much as possible without the soil working down the inner side of the leaves. Those sown in the open, however, are scarcely forward enough for this operation. Thin these out to about 8 or 9 inches apart, and as they cannot well be too big give them an abundance of liquid manure. Keep runners pinched off all the Strawberries, and on all favourable occasions hoe among them and all other growing crops. Caterpillars are unusually destructive among Cauliflowers, Broccoli, and Cabbage; hand-picking persisted in seems the only remedy.

HOUSES AND FRAMES.

Where Grapes are at all backward in ripening, or are found to be deficient in sugar, they will be much benefited if the fires are started in the morning of dull days, and on fine days in the afternoon. Have the ventilators open slightly all night both at the top and bottom, and ventilate freely in the daytime during favourable weather, the object being the maintenance of the necessary dry atmosphere, which will materially assist in the thorough ripening of the wood.

Preparations will now have to be made to bring in all the usual occupants of the vineries and greenhouses, as damp cold weather will injure them if they remain out much longer. If the Grapes are thoroughly ripe, and are required to keep any length of time, they may be cut with two or three joints of wood attached below the bunches, these to be trimmed and inserted in bottles partially filled with water and suspended in a dry room. Soda water or seltzer water bottles are suitable, and should not be more than three parts filled. The only alternative of cutting is the free use of fire heat

with ventilation as above advised, as it is useless attempting to keep Grapes in a cold damp house filled with plants, and there are but few small gardens where the vineries can be kept clear of plants. Azaleas, Camellias, Heaths, Epacris, Coronillas, Deutzias, Spiræas, and Chrysanthemums will do well in a dry, cool, or warm atmosphere as the case may be, and may be therefore placed in the vinery. Salvias, Eupatoriums, Libonias, Solanums, Browallias, Petunias, Zonal Pelargoniums specially prepared for autumn flowering, Salvias, Callas, Abutilons, and softwooded plants generally, will do best in the greenhouse. Rather than any of the above useful kinds should be crowded Coleuses, Balsams, and even Fuchsias if over-abundant, should be thrown away to make room, as none of them would present a fresh appearance much longer. Better results will be obtained by growing a few good healthy plants than a number of weakly specimens.

Those who intend attempting to keep Coleuses and Iresines through the winter in houses in which a somewhat low and therefore unsuitable temperature is maintained, should select some of the smaller plants, say in 5-inch pots, and well established, placing them in the warmest and driest part of the house. Water must be given them very sparingly and always chilled, and the foliage be kept as dry as possible. They have been kept alive through some winters in the windows of living rooms by those who failed to keep them in a greenhouse, but much trouble was necessarily taken with them. Winter-flowering Begonias, such as *B. fuchsioides*, *B. Digswelliana*, *B. Ingramii*, *B. Saundersii*, and *B. semperflorens*, are sometimes seen in very good condition in imperfectly heated structures. These plants must also be well established in rather small pots and watered carefully, though not allowed to become dust-dry, as that would be very injurious. The proper place for the large-flowering Pelargoniums during the winter is on shelves near the glass. Not much water should be given them.

Cyclamen persicum.—The present is the best time to make a sowing of these in order to obtain sturdy plants with which to make an early start next spring for blooming the following autumn. Fill one or more 6-inch pots half full of potsherds, over this place a little rough soil, filling up to near the top with fine and rather light sandy soil. Sow the seed thinly, press it in, cover lightly with fine soil, and water through a fine-rose pot. Cover the pots with slips of glass and place them on a greenhouse shelf, shade from bright sunshine, keep the soil uniformly moist, and a successful germination will be almost certain.

TRADE CATALOGUES RECEIVED.

E. G. Henderson & Son, Maida Vale, London.—*Catalogue of Bulbs.*
J. B. A. Deleuil, Rue Paradis, Marseilles.—*List of Bulbous and Tuberous Plants.*
George Cooling & Son, Bath.—*List of Bulbs.*
Harrison & Sons, Leicester.—*Catalogue of Bulbs and Flower Roots.*
R. Pennell & Son, 169, High Street, Lincoln.—*Catalogue of Bulbs.*



* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Eryngium maritimum (*M. E. H.*).—The Sea Holly is a perennial plant, and usually succeeds in a slight sandy soil; but possibly your specimens have suffered in the transplantation. The only remedial measure we can suggest is to supply them with a weak solution of salt, as possibly the soil in which they are planted is deficient in saline substances. As the plant is a native of the seacoast in various parts of Britain more or less salt must enter into its constitution.

Brown and Tait's Eclipse Cauliflower (*J. G.*).—We have had other testimony besides your own of the usefulness of this variety for culture and use

during the summer, and the heads that you sent to us last year quite substantiated all you had said regarding the variety. If other writers on gardening had produced similar heads in a dry district they would have been fully justified in writing approvingly of the variety, and no doubt would have readily done so.

Gardener Emigrating (*Emigrant*).—We regret that we are unable to supply you with the information you require. Some of the principal nurserymen have occasional applications for men to take the charge of gardens in America and the colonies. If you are personally known by any influential nurseryman you might make your wants known to him; failing this your only course will be to advertise either in British or colonial horticultural papers, or both.

Benham Hybrid Melon (*Old Subscriber*).—This Melon, Mr. Howe, the raiser of it, informs us, is the result of a cross between Victory of Bath and Golden Queen. There is, however, a Melon named Scarlet Queen, which Mr. Howe also possesses.

Old v. Gilbert's Victory of Bath Melons (*Idem*).—The Melon exhibited by Mr. Goodacre of Elvaston at the Alexandra Palace was named "Old Victory of Bath," a variety that he had many years ago from Taunton. We do not know what difference there is between the "old" and Gilbert's Victory, and curiously enough a letter is now before us from a cultivator who states he has grown both the Melons named, of which he obtained seed from original sources, and can find no difference whatever between them. The name of the Onion to which you refer was correctly given on page 236. The naming of products at exhibitions is not always so clear as it should be. It is of great importance that new varieties be clearly and legibly named when they are first exhibited.

Begonia Leaves Blistering (*Gloucester*).—Without knowing anything about the conditions under which your Begonias were grown, and the mode of culture pursued, we are unable to suggest the cause of the plants being in their present unsatisfactory condition. The crumpled and blistered foliage may arise from defective root-action, diseased tubers, or sudden fluctuations of temperature. Possibly, however, the evil is at the roots; the tubers may have been slightly diseased, and the plants may have been overwatered during their early stages of growth.

Storing Potatoes (*F. M. S.*).—After many years' experience we have concluded that there is no better mode than storing them in a dry outhouse in layers, alternating with sand, and covered with sand or soil to exclude frost. If you have no such convenience for wintering the tubers you can only adopt the mode of storing recommended to a correspondent last week on page 269.

Late Roses (*Freemason*).—Most of the best Hybrid Perpetuals are good late bloomers, but the particular period at which they bloom depends partly on the time of pruning, and much more on the state of the weather. The following are good varieties and autumnal bloomers:—Charles Lefebvre, Alfred Colomb, Louis Van Houtte, Star of Waltham, Madame Lacharme, La France, Prince Camille de Rohan, Maréchal Niel, Gloire de Dijon, Marie Rady, Beauty of Waltham, and Alfred K. Williams.

Plants for Baskets (*S. H.*).—We do not think that the temperature would be too low for Tropæolums of the Lobbianum species, except, perhaps, during the depth of winter. Tuberous Begonias are bright and effective basket plants during the summer, also Ivy-leaved Pelargoniums, so also are Achimenes. In the spring the baskets may be rendered very gay with bulbs, as Hyacinths, Tulips, &c., succeed admirably in them. Lachenalias are fine in baskets, the bulbs being placed close together all round the moss-lined sides, the centre being filled with rough soil. Mr. Ollerhead of Wimbledon has several baskets thus filled every year, and they are most beautiful in spring.

Fruit Tree Barren (*A. H.*).—Unripened wood is no doubt the cause of your trees not producing fruit, or possibly the frosts of spring have destroyed the blossom. We do not perceive that there has been any fault in the planting, while the soil appears favourable to the growth of the trees. If you have thinned out the growths where they were crowded according to instructions that have been given in the Journal, the shoots remaining will have become firm and mature, and your trees will, in all probability, bear well next year, unless late spring frosts destroy the blossoms. For destroying the insects dissolve 5 or 6 ozs. of soft soap in a gallon of water, adding thereto a wineglassful of paraffin, and apply it to the stems with a stiff brush, scrubbing the solution well into the crevices of the bark.

Hyacinthus candicans—**Planting Agapanthus** (*Mrs. Davie*).—If you have no glass structure to which you can apply artificial heat you had better let the seedlings remain as they are, watering them carefully so as to keep them growing as long as possible. Had you a heated structure we should advise you to prick them off and keep them growing on a light shelf near the glass; but to divide them now without such convenience would probably end in the loss of many of them. You would have succeeded better by preserving the seed and sowing it in the spring. On the approach of warm weather you may divide your seedlings, transplanting them thickly in large pots, or in light soil in a frame. In all probability your Agapanthus would succeed planted out in a warm sheltered border, affording a little protection during winter, which we presume is not usually very severe in your district; but we should not turn the plant out until the spring.

Woodlice in Peach Wall (*J. P.*).—Either all the joints should be carefully "picked out" and the courses freshly "pointed," or the wall should be plastered. If you adopt either of these remedies, and also remove much of the surface soil from the border, especially near the wall, and apply fresh and rather heavy loam, you will at the same time practically eradicate the pests and improve the condition of your Peach trees. A great number of the woodlice may be caught by placing a hoiled potato in a small flower pot and covering it with moss. A number of traps so prepared and placed on their sides will attract many of the pests. The pots must be examined daily and the woodlice destroyed; but the radical remedy in your case is to carry out our recommendations as to pointing the wall and removing the soil.

Flowers for Cutting (*J. C.*).—We do not think you would find it profitable to attempt growing under the shade of Vines plants for affording cut flowers from June to September. Probably if you had a number of Tea and other Roses in pots they would afford some flowers that would be acceptable, the plants being placed in the open air to make their growth after the flowers were cut. Maréchal Niel would not succeed well on the shaded hack wall. Why not grow a number of Tea and other Roses in the open air for producing flowers during the period named? No plants succeed under Vines better than Camellias, and flowers of the white varieties are always in request. White Chrysanthemums are in demand in the autumn, and a number of plants of Mrs.

George Rundle and Elaine grown in the open air during the summer and placed in the vinery in October would probably occupy the space profitably.

Propagating Fuchsias (J. B.).—You will not be able to strike the young growths at this season of the year without artificial heat, and if you were they would not make good plants, as you have not the means at your command for growing them on properly. You had better gradually withhold water from the plants and permit the leaves to fall; the plants may then be preserved in a light or dark frost-proof place during the winter, the soil only being kept just moist. If they are pruned closely in the spring, and when growth commences have all or nearly all the old soil shaken from the roots and repotted in fresh compost, they will grow freely, afford good cuttings that you can strike readily, and both old and young plants will grow well and flower freely. The growths of your Rose will be better trained to wires about 6 inches from the glass than secured to the sashes, and it would probably succeed better if planted outside the house, the growths being trained inside after the manner of Vines. In this case, however, as with Vines, it is necessary to protect the stem from severe frost by enwrapping it in haybands.

Arrangement of Greenhouse (A. D.).—You do not state the width of the house; but judging from the fact that you have borders of the width of 8 feet, we think you have room for a central stage with a path in front between the stage and the low border, and a narrow path at the back for opening the ventilators. You might reduce the front border if necessary, while the back border we should clear away, and form a flat stage a foot wide 4 feet from the ground; on this you could place tall-growing plants, and train such as are suitable to the wall. For attending to these plants and the ventilators a path 2 feet wide would be sufficient. The back of the stand or stage should be perpendicular, and the top a little higher than the stage near the back wall. The height, however, of both these stages can only be determined by the height and size of the house. The principal stage will slope to the front, the bottom shelf being about 2½ feet from the ground. You might, whether you decrease the width of the front bed or not, raise it a foot or even more to make it more uniform with the height of the stage on the opposite side of the front path, which should not be less than 3 feet in width. The front bed would be suitable for dwarf plants, which would thrive well near the glass, the taller plants being arranged on the stage. You will need a path along at least one end of the house. If the ground, from the wall to the back of the stage, is raised a foot or more, the ascent being by a couple of steps, it might be more convenient for attending to the plants at the top of the stage, which may be 2 feet wide, for accommodating large plants. But this path elevation must depend entirely on the height of the house and the central stand. As you do not give the dimensions of the structure our reply can only be of a suggestive character; it may, however, be of some use to you.

Vines Starting Prematurely (J. H., Bacup).—You have scarcely made your case clear to us, inasmuch as you do not state whether you have pruned the Vines or not. If you pruned them in July you erred; if you did not prune them we cannot understand how they could "start afresh and show bunches" now, unless the growth is in the form of sub-laterals, which not unfrequently show fruit in the autumn, the axillary buds on the primary laterals remaining dormant. If your Vines are pruned and the fresh growth starts from the spurs close to the main rods, all you can do is to train the rods to the roof, manage the house as to moisture and temperature as if in spring, and with proper attention to the Vines (the same as is given in spring) you will have new ripe Grapes soon after Christmas. If the Vines have not been pruned, and the young growths to which you refer are produced at the extremities of the laterals, the base buds remaining dormant, then you may rub off the young growths, keep the Vines as cool as possible by shading them, and dry by sheltering them from the rains, to prevent the primary buds on the lower parts of the principal laterals starting before the time you require them.

Propagating Hollyhocks (Saxring).—Probably if some of the sturdy offsets were potted now and placed in a frame they would emit roots, but the usual time of striking cuttings is in the spring, taking off the shoots when 5 or 6 inches long with a heel, and inserting them singly in small pots and plunging them in slight bottom heat. You may also divide the plants in spring, or rather take the offsets from them with some roots attached, and plant them where required to flower. Hollyhocks are also propagated from eyes or cuttings in the summer. These cuttings are made from medium-sized or small flowering stems where they are a little firm, and a small leaf is produced from each joint. If cut smoothly close under a joint and slanting an inch above it, and these "eyes" are inserted firmly in sand under handlights, watered and shaded to keep the leaves fresh, roots will soon be emitted and growth issue from the axil of the leaf from which the flower bud has been removed. Cuttings have two joints, the lower being inserted in the soil to produce roots, the upper being just above the soil to produce growth. This mode of increase may be adopted in June or July. If you can take offsets from the plants now with roots attached, pot and place them in a frame, that would be a sure mode of increasing your stock; but when a great number of plants are required the other modes of propagation are resorted to.

Grapes Decaying (C. Edwards).—The Grapes were quite smashed by having been sent loosely in a tin box. Fruit should always be packed so that it is immovable in transit. We have no difficulty, however, in determining that the bunches are much shanked, and judging from the general appearance of the stalks we have no doubt that the root-action of your Vines is defective. If the border is wet it must be drained, and the old soil should be removed from the roots and fresh turfy loam applied. You state no particulars as to the age and growth of the Vines. They probably require renovating, and if so you cannot do better than adopt the plan described on page 227 of our issue of the 9th inst. There are hundreds of old Vines in the country that might be greatly improved if the mode of renovation there detailed were carefully carried out. There is no better time for lifting the roots than the present, or immediately after the crops are cut, and before the leaves fall from the Vines.

Vines in Low Situation (G. D.).—We think you may reasonably expect to produce good Grapes under the conditions you name, provided—and this is very important—that you keep the feeding roots near the surface of the border by mulching with manure, especially in summer. If you do that and water occasionally in dry weather, the moisture and rich food will not render it necessary for the roots to descend into the subsoil in search of the moisture they need and will find if it is possible, which in your case they will have no difficulty in doing. If you neglect the surface of the border by permitting it to become dry in the summer the roots will inevitably descend, and then your Vines will not long remain in a satisfactory condition. Had we been consulted before the border was made, we should have advised you to make it entirely above the ground level of the district, and then if you had concreted the bottom you would have been quite safe from the stagnant moisture that exists below the peat bed. Follow the course we have recommended of mulching the border with manure to remain on all the summer, and then, if the Vines diminish in fruitfulness after

a few years, lift the roots and place them in fresh and good soil, making the border as we have indicated.

Plants to Flower in August (L. D.).—Allamanda Hendersoni should now be kept rather dry at the roots, and in plenty of light, so as to ensure the thorough ripening of the wood. It should be kept rather cool and dry through the winter, but not so dry as to cause the wood to shrivel, and should be pruned and started early in April. Anthurium Schertzerianum will require ordinary treatment up to March, when it must be kept cool, or in a temperature of 50° artificially, and about the middle of June should be placed in the stove and encouraged with plenty of heat and moisture; whilst resting it must be comparatively dry. Bougainvillea glabra should be kept cool and dry up to June, when it must be pruned and started in heat. Clerodendron Balfourianum also should be similarly treated until June, and then started, not bringing it on too quickly. Rondeletia speciosa major being pruned and started early in April will flower at the time required. Statice profusa will also require to be cool and as dry as the foliage will bear up to July, when if placed in moderate heat it will come on gradually. Stephanotis floribunda should not be started until May, and may then be brought gently forward. The present condition of the plants will exercise an effect on the flowering, but it is a question of retarding the flowering to a later period than usual, and requires considerable experience and judgment on the part of the cultivator. Some started at the time named may come into bloom too early, and will need to be retarded, and others may need assisting, which can only be ascertained by the grower.

Names of Fruits (George Seales).—The Apple is Alfriston.

Names of Plants (Northampton).—1, Gymnogramma chrysophylla; 2, Gymnogramma peruviana; 3, Platyloma falcata. (N. S., Bristol).—Leyeesteria formosa. (J. S., Forfarshire).—1, Sida lea malvæflora; 2, Chelone obliqua. (No Name).—1, Nephrolepis exaltata; 2, Goniophlebium colpodes; 5, Platyloma rotundifolia; 6, Tropæolum speciosum. Send fronds of the other Ferns bearing spores.



POULTRY, PIGEON, AND BEE CHRONICLE.

SHED ACCOMMODATION FOR CATTLE.

(Continued from page 271.)

IN making further allusion to the accommodation for cattle we must observe that our remarks upon box feeding have not included any statement as to the value of the manure obtained in boxes compared with other modes of securing it. The quantity of dung, including both liquid and solid excrement voided by cattle, may be estimated to weigh about 80 lbs. daily; and if box feeding will retain for use more of this than any other method it becomes a matter of some consequence, particularly as the value of the dung voided by full-grown animals, whether dairy cows or fattening cattle, would, according to the nature of the food consumed, vary from 1s. 6d. to 2s. 3d. per week per head of stock. Various interesting experiments have proved these items to correctly represent the result of box feeding if properly carried out. We also find that when 20 lbs. weight of straw is used as litter it will yield of well-made manure four and a half times increase, or 90 lbs. weight of fresh box dung. It is further considered that twice as much litter must be employed per head when animals are fed in open yards and sheds. Assuming this to be the case, and supposing the weight of fresh dung to bear the same proportion to that of the litter in both cases, it is clear that a given amount of litter used in open yards will be saturated with only about half as much of the excrements of animals as it would be in boxes, the remainder of the moisture being made up by rain water. At any rate, it is obvious that the amount of the constituents derived from animal excrements that will be carted to the field in each ton of dung will be extremely variable according to the mode of its manufacture. It must, however, be borne in mind that to obtain the full value of box-made manure it should be laid upon the land direct from the pit.

Buildings for stall feeding next claim our attention, for practically this is the only mode of caring for cattle under cover available in the pasture districts of the kingdom. The scarcity and dearness of straw renders box feeding almost out of the question. We have, however, to deal with two important objects in this case—the health and comfort of the animals, and the rendering

of their manure valuable for improving the parkland and pastures. It is not often that new erections are required for stalling either fattening bullocks or dairy cows, for almost any range of shedding may be made available at but little cost. If, however, it is required, a lean-to shed of about 16 feet in width may be made to answer a good purpose, being merely attached to some building of sufficient stability. In the apportionment of the 16 feet space inside we shall require a feeding path 3 feet wide; this will leave room for 10 feet of standing room for the cattle and the mangers, and 3 feet for the passage of the animals and the removal of dung. The question of stalling is worth consideration—whether the animals should stand in pairs, with a stall division between each pair, which for large cows or fattening oxen should be not less than $7\frac{1}{2}$ feet apart, but for smaller animals $6\frac{1}{2}$ or 7 feet will be sufficient; the other alternatives are divisions for single animals at about 5 feet apart, or merely a tether without any division at all. We recommend the stalling in pairs, because the animals being tethered on each side can feed separately without interfering with each other, nor can they turn round and drop dung on the part assigned for their bed. Now, the saving of the manure in a useful state must next be considered; and on being asked, Will it pay the expenses of collecting, preparing, &c.? we say Yes, if we calculate both the direct and indirect advantages of the system, taking as direct the value and quantity of dung as above stated, and the saving also of straw as litter; then indirectly the advantages of the animals living in a pure atmosphere are of the highest importance. The mode of saving the excrement, both liquid and solid, which arises at the stalls may be done in different ways. First the floor of the stalls should not be composed of brick, stone, or any materials which will absorb and retain the urine in or between them, because they will be continually giving off ammonia and tainting the air more or less, except in the case of an earth floor, which will absorb the urine and fix and decolorise the ammonia and other volatile portions of the manure. There are only a few cases, however, in which we advocate the use of an earth floor to the stalls, one of which is for dairy cows that are only in them at milking time or in bad weather, and this exception is justifiable only in consequence of the earth floor, which when used constantly without litter would require removal too often for economy, the solid excrement only being removed in the same way as required from stalls with an impervious floor. A floor, however, made of concrete should have a fall to the gutter behind the animals for the urine to drain away to a tank, giving proper attention to cleanliness in the stalls. The urine or liquid manure should be treated in the tank with some absorbent materials, such as dried and screened earth, strong loam being the best, or otherwise dried peat soil, or dry and charred ashes, all of which will answer the purpose of securing the value of the manure as a good dressing for pastures, &c. On no account must the liquid remain on the surface of the accumulations in the tank, because fermentation and decomposition will immediately take place, not only reducing the value of the compost, but tainting the atmosphere of the contiguous sheds and stalls. In removing the solid excrement it may be cast into the tank if sufficiently capacious, otherwise it should be placed on a heap of dry mould under cover, in which case, after being turned over and mixed, it will form a manure superior to that when mixed with straw litter. Another way of disposing of the liquid and solid manure is to flush it away together with water into a tank, to be used on Mr. Mechi and Mr. Hustable's plan for being distributed by pump and hose over the land; but we do not advocate this. Another plan is to have a trench or pit about 3 feet wide and 2 feet deep covered with a sparred floor or grating behind the animals; the manure then drops directly upon the grating, and passes into the pit, which should be partially filled with absorbent materials at intervals as above stated, and the sparred floor kept clean by sweeping and using gypsum strewn over. Now, any of these plans will accommodate either dairy cattle or fattening bullocks without being likely to endanger their health or injure the milk for dairy purposes, yet it must be remembered that the manure arising from fattening bullocks will pay better for careful attention in its preservation than that derived from the dairy cattle.

Having referred to the housing of cattle on pasture farms we will notice the system adopted by arable land farmers, which is practised in various counties, but especially in Norfolk. It is, however, upon occupations generally where the farmer is debarred from selling any of his straw; he in consequence follows a plan which will readily and at little expense convert the extra straw into useful manure. Now, although the home farmer may have a considerable portion of arable land produce in straw to convert into manure, yet he is not bound to do so, but may sell it. We shall, however, remark on "Hammell" or court accommoda-

tion as used in Norfolk and other districts, for although it does not meet our approval entirely for fattening bullocks, yet it may be used with some advantage for young stock in the winter months, and more especially those which are kept in what may be termed a probationary state, in readiness for entering upon pasture feeding, and to be fattened thereon in the summer months. These courts consist of a lengthened shed divided into compartments, to contain easily from three to four beasts, with a doorway to each which opens into small uncovered yards. Some farmers feed the animals in the shed, others feed them with movable racks and troughs outside, and it is contended that as the fattening animals get moderate exercise it keeps them healthy without hindering their fattening, and also that the cost of attendance is less than on the stall system, and the dung being constantly covered over with fresh litter instead of being removed. It is not, however, customary with them to place earth on the floor of the sheds and open courts; but the home farmer will readily see the advantage of doing so if he should be induced to adopt this system with his young cattle, but for fattening bullocks all the arguments referring to it are dead against the "Hammell" system. As this is a question of vital importance upon any home farm we recommend that where there is nearly all parkland or pasture that a fair portion of arable should be held with it, in order that a fair amount of straw produce may be grown for the purpose of littering stock of various ages, or for various objects. In most cases—whether of dairy cows, fattening oxen, or the calves and young stock reared—some litter will be required, especially in the case of calves and yearlings, for although these can be managed on the grass paddock, with sheds for refuge in the summer months, yet in winter, for something like seven months out of the twelve, they will require to be housed or partially sheltered in yards in the night or day according to circumstances. The "Hammell" system will be sufficient for the yearlings, but for calves of any age up to nine or ten months they should be under cover when not grazing on the pastures. Now, for these the boxes or divisions under cover will accommodate them; but it requires the careful management of earth floors, with constant littering with short straw, and fine earth added occasionally, in order to prevent foul air in the pens, for we hold that no calf pens are healthy, or so healthy as when the manure accumulates under them upon the box system, as we have before described. But especially will this be the case with fancy stock, or animals held on for exhibition purposes, upon the principle of early maturity. In fact, for such animals they should never be off the straw, for when kept in boxes three or four together, according to age, there is no accommodation which will bring them forward in better health and more promising condition for exhibition, as we have proved in our practice for many years, whether the animals were shown for prizes or went straight to the butcher for slaughter. Before concluding the subject we shall refer to covered farmsteads, &c.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The importance of this in various ways after the completion of harvest imposes upon the animals severe work, so many and such beneficial tillages being required, and all crowded into the space between harvest and the middle of October, this being the period at which the preparation of the land by ploughing, pressing, &c., for the Wheat seed time can no longer be delayed without serious risk. There is no way so advantageous as to employ steam power, for it not only does a lot of the heaviest work, but it does it within a given time. This the ordinary horse labour of the farm cannot often accomplish in reasonable time in any season upon heavy soils, much less in an autumn like the present, when there is a heavy amount of horse labour in arrear. We cannot now be too early in ploughing the last time for Wheat, because a stale and mellow furrow is really requisite to insure a good seed bed; but although we recommend an early preparation of the land we do not as a rule recommend sowing Wheat before the middle of October, except under peculiar circumstances of soil, situation, and aspect, when it can only be decided in a general way by those who are experienced in the farming of a particular district. Rye, Trifolium, winter Vetches, winter Beans, winter Barley, &c., should all be sown now, the sooner the better. We have a variety of winter Barley now being offered in the markets which we have not noticed for some time until last year. Nearly or quite fifty years ago we used to sow it as spring food for sheep and cattle. It is even more forward than Rye, and stands the frost well. It does not grow quite so thick as Rye, but is stouter in stalk and more succulent. Cabbage plants of the varieties required for the feeding of stock in the spring can now be planted, for it may so happen that they may be very valuable in a cold dry season, and if not required upon the home farm they are sure to be required by people in towns: in fact, wherever the farms are situated near to populous towns the vegetables produced ought to be of such kinds as are likely to furnish food for the people when the stock of the home farm cannot consume it all in good season.

Now the method of manuring the land is important, and in the event of the soil being strong and heavy the land should be laid into ridges about 8 or 10 feet wide with deep land furrows, so that the water may drain off the surface quickly in order to insure an early growth; but when the soil is dry and friable the plants may be set upon land ploughed on the level, except in case it is very much exposed. We then prefer to plough the land into stretches 18 inches or 20 inches apart, and set the plants in the furrows so that they may be protected against the cutting winds and frosts of winter, and at the same time if a fall of snow lies on the land for some time the plants will be covered and will thus be protected against larks, wood pigeons, and other depredators—even rabbits, for all these enemies to vegetation often destroy such crops as young Cabbage plants during a hard winter. If the land requires it some guano or superphosphate may be strewed in the furrows at planting time, otherwise some other hand manure, nitrate of soda, &c., may be sown in spring at the time of horse-hoeing, which will encourage the growth of the plants.

Hand Labour.—The men will now be required to finish the trimming of hedges. It should, however, be done before this time to be completed at the proper time, also finishing off the corn ricks by thatching and trimming the outsides. For this work the newly invented hedge-clipping implement will answer well and make the ricks look very neat if properly done, for the home farmer should remember that most landowners like to see the ricks and stackyards neat and clean. The underwood in the hedgerows and coppices will now be ripe for cutting, as it makes no further growth after the middle of this month; besides which the rods always work kinder and freer when converted into hoops, &c., whilst the wood is soft and kind. All timber cut for repairs during the spring should now be entirely cleared off the fields or woodlands, and the heavy timber carts, &c., will do but little injury if employed before the autumn rains set in. The dairy cows and also the young stock will now require some supplementary food, such as Clover, as long as it lasts, or late-sown Rape and Vetches, otherwise early Turnips, Cabbages, &c. Where these auxiliaries cannot be obtained an allowance of 2 or 3 lbs. of linseed cake or 3 or 4 lbs. of cotton cake per head should be given daily, as the pastures are now getting stale, except in those cases where grass has been specially reserved for autumn feeding. Now is the time to purchase cows having recently calved, in order to maintain a full supply of milk, &c., for the winter months. The young Clover plants, whether grown in Wheat or Lent corn, may now be fed off by sheep without injury, if not fed down too close, up to the 1st of October; but from that time should be reserved to make a little foliage to protect the crown buds and stems during winter. If the seeds are not very strong it is best not to feed them at all, as they then stand the winter better.

ADVANTAGES OF A HOME FARM.—No. 1.

COUNTRY gentlemen who are landed proprietors are accustomed to retain a farm in their own hands at a convenient distance from their residence for the production of farm produce to supply the wants of their household. The plan is based upon the soundest principles of economy, and when well carried out combines the advantages of a regular supply, produced at the lowest possible cost, of food that is wholesome, fresh, and sweet. Having for some time had the management of an estate upon which this system of home farming is thoroughly and successfully carried out, I purpose giving an account of what is done and how it has been found to answer.

A full supply is maintained throughout the year of milk, cream, butter, eggs, chickens, mutton, bacon, hams, lard, flour, hay, straw, and corn. Pork, Turkeys, Ducks, Geese, and Pigeons are supplied when in season. The main crop of Potatoes, with Carrots, Turnips, and other root crops, is also grown here. I may add in passing, that when to this is added the gamekeeper's usual quantum of game, fish, and venison, a house is rendered almost independent of the butcher and provision merchant.

Of the size of a home farm it is difficult to submit any general positive statement, local peculiarities of climate and soil must always be taken into consideration. A few acres more rather than less than is considered absolutely necessary may always be retained profitably, for the home farmer has the peculiar advantage of a market close at hand for the bulk of his produce, and has no difficulty in the profitable disposal of what is not required for home consumption; for although he has in his annual statement to show clear proof that the farm is paying the popular "three incomes"—the landlord's, the tenant's, and the interest upon capital invested in its culture as well as a surplus to be expended in future improvements, yet he is not obliged to sacrifice his superfluous stock to raise funds for the rent day, but can await each favourable turn in the markets before effecting a sale.

Statements are occasionally published of what wonderful things may be done upon a very limited area of land—how an acre will maintain a cow, and other acres can be made to do something equally wonderful. Tempting as such statements are, they must

always be received with reserve and acted upon with extreme caution. To obtain large returns from farm land a system of high culture akin to that of market gardening must be pursued, and the outlay of capital will be proportionately high. The thing is as clear as the day; it is an expensive high-pressure system always to be avoided when possible, for very high farming only answers under very favourable circumstances.

Two hundred acres may be taken as the maximum size for a large establishment of the first-class, consisting of the family and about thirty servants. For ordinary and more numerous establishments fifty acres less will suffice. At first sight this area may appear in excess of ordinary requirements, but in making calculations a broad margin must be allowed for visiting company, as well as for adverse seasons. Accidents and disease among live stock must also be expected. No produce of inferior quality must be sent to the house; but then it can readily be sold with the surplus, which must always exist in order that the farm may fully sustain its legitimate purpose of keeping up a regular supply. To do this well requires some experience combined with sound judgment and the exercise of a considerable amount of care and forethought. I will next refer to the management of the soil.—EDWARD LUCKHURST.

THE INSECT FOES OF THE MANGOLD WURTZEL.

WRITING upon this important plant, Mr. Dickson stated in 1844 that in the general way it appeared to be little affected by insects or by drought. More extended observations do not sustain this favourable view with regard to insects, for it has been noticed to be liable, not only to the attacks of those insects which infest Beet, but also to several that are only too abundant on the Turnip. One of these, which has done notable damage to the Mangold Wurtzel in several localities, is the grub or larva of the fly known in science as *Anthomyia betæ*, the first account of which was published in Curtis's "Farm Insects" (1860), the species having been observed a few years previously. Mr. Curtis expressed the opinion that it was not a pest likely to do much harm, though he suggested that it might render the leaves of the Mangold Wurtzel unwholesome food for cattle. He thought also that it was a species, the increase of which was held in check by a minute parasite, and, indeed, he was unable to obtain examples of the female insect. In appearance this fly resembles somewhat the Onion fly (*A. ceparum*), which, with the even more abundant Cabbage fly (*A. radicum*), is unpleasantly known in our gardens. The habit of the larva of *A. betæ* is decidedly different from that of the preceding, since it mines the leaves, speedily reducing them to decay, and where thousands are at work in a field it presents a wretched aspect, the remedy suggested by Curtis—viz., the pinching of each leaf the moment it is discovered to contain a larva, being inapplicable on a large scale. This larva is pale green, scarcely a quarter of an inch in length when adult, pointed at the head and rather broad at the tail; it turns to a pupa within the leaf. Curtis thus describes the male fly:—Ashy grey, clothed with black bristly hairs; head semi-orbicular; eyes, large brown; face satiny white, with a bright chestnut-coloured line down the middle; protruding lip and palpi black; wings transparent, tinted with tawny at the base; legs longish and bristly. The female fly has been taken this year and presents some points of difference which will be noted shortly.

Another species of this genus, *Anthomyia grava*, has done some damage on the Continent to Mangold Wurtzel and also to Beet, producing cavities in the bulbs; but though a native of Britain, it has not been yet reported as injurious to our crops. The male fly has a black trunk and legs, an ash-coloured body, with darker bands and black spots. The female is ash-coloured, with a black line down the centre of the body. The size of each is under a quarter of an inch.

The insect commonly but erroneously called the Turnip flea—properly a beetle named *Haltica nemorum*—visits the Mangold Wurtzel. As early as April or May the females deposit their eggs upon the young plants, and the larvæ shortly after are found within winding burrows formed in the pulp of the leaves. They are full grown in less than three weeks, quitting their mines usually to become pupæ. Several broods of these may follow each other in the course of one season.

The larva of another beetle, *Silpha opaea*, did much harm to the Mangold Wurtzel in Ireland during 1844 and some years subsequent. It does not seem to have been particularly noticed in Britain. It is conspicuous, being an external feeder, devouring the leaves down to the root in the months of May and June. Within a mixed field, where grew also Potatoes, Turnips, Peas, and Beans, this larva rejected these to fasten upon the Mangold Wurtzel. Squat in form, with short legs and a black and shining skin, this larva has a near resemblance to a woodlouse; the males, however,

are rather longer and narrower than the females. Salt and lime have been found to have not the slightest effect upon them.

The caterpillars of two moths occasionally frequent our crops of Mangold Wurtzel, and in appearance and habit they have a great resemblance to each other. They are fat brown caterpillars allied to the ever-abundant *Mamestra Brassicae*. One of these produces the Turnip moth (*Agrotis segetum*), the other the Heart and Dart (*A. exclamatoris*). The larvæ of both are hatched in spring, when they at first feed upon the leaves, but shortly burrow underground, where they destroy the roots, often coming forth at night to attack the stem or the crown of the plant. The late Edward Newman remarked that the farmers have brought upon themselves the trouble they have had from these pests by encouraging the destruction of rooks and starlings, their especial enemies. The partridge also seeks them eagerly, particularly the larva of *A. segetum*. Curtis received between 1836 and 1842 many accounts of the damage done to young Mangold Wurtzel by the larva of *A. exclamatoris*.

Our list is not exhausted, for the almost omnivorous larva of the crane fly (*Tipula oleracea*) in some years seriously affects this plant, nor does it always escape the wireworm. Swarms of a minute Podura, a jumping mite, are occasionally seen upon the leaves, but they are not harmful.

The most decidedly injurious to the crops during the present year is the pest first named. We saw in July many acres of Mangold Wurtzels without a healthy leaf on them, and the crops were practically ruined. There were millions of maggots in the field. We counted two hundred in the leaves of one plant, and as may be expected they were speedily devoured and the small roots remained in a standstill state. It is difficult to know what course to pursue under those circumstances, but it would be at least prudent to grow the Mangold Wurtzel crops next season as far as possible from the fields that have been so persistently attacked this year.

POULTRY NOTES.

THE DAIRY SHOW.—Owing to the liberality of several donors of money and special prizes the schedule of the Dairy Show is this year a much more liberal one than last year. Dorkings are aided by a gift of £10 from the Rev. H. R. Peel; they have six classes with prizes of £3, £2, and £1 in each. Cochins are shown in pairs and have four classes, Brahmas the same number, Hamburgs five, Game six. There is nothing novel in the poultry schedule save a class for Plymouth Rocks. There are four classes for dead poultry, which are admitted up to ten o'clock on the first day of the Show, and may be removed at 5 P.M. on the third day. The Judges are Messrs. T. C. Burnell, O. E. Cresswell, S. Matthew, R. Teebay, and G. S. Sainsbury. We are particularly pleased to see the name of the last-named gentleman, as the Waterfowl are sure to be most ably judged. We understand that Mr. Cresswell only allowed his name to be put down conditionally—i.e., in case he should be well enough to officiate. For Pigeons there are throughout three prizes of £2, £1, and 10s. in each class; Pouters have seven classes, Carriers nine, Dragoons eight, Tumblers six, Barbs six, Jacobins five, Fantails two, Owls four, Turbits four, Antwerps five, and Nuns, Trumpeters, Magpies, Runts, and Suabians each a single class.

We understand that Mr. A. Darby of Little Ness, Shrewsbury, has been elected to the office of Co-Treasurer of the Poultry Club, vacant by the resignation of the Rev. H. R. Peel.

The Poultry Club is, it is said, likely to hold a show early in January in one of the home counties, open alone to the members of the Club.

We have often advocated the proper subdivision of classes for poultry where several different colours of the same variety otherwise compete together as a politic measure even from a monetary point of view. An analysis of the entries this week at the Worcester Show quite confirms our opinion. Game had four classes and sixty-two entries, Cochins four classes and fifty-seven entries, Brahmas four classes and sixty-nine entries. The five varieties of Hamburgs competed together in two classes, and the result was that seven cockerels and eleven pullets appeared, and this at a place very accessible from the great Hamburg-breeding districts. The Variety class too—to which Malays, Minorcas, Andalusians, Sultans, Silkies, and many other varieties were relegated—contained only seven pairs of birds. Bantams again had six classes (by no means too many), and mustered in consequence ninety-four birds.

DOES LIKE PRODUCE LIKE?

AN applicant for information says, "Does like produce like?" We answer, as we have answered before, "Yes" and "No." In

all admitted breeds, Polands, Cochins, Game, the varieties of Ducks and others that have the stamp of originality upon them, like produces like—not, however, to a feather. The prevalence of dark ones in a Cochin, the brown breast sometimes thrown by the offspring of Black Red Game fowls, and the increase of black feathers in the white top of the Poland continually occur, but nothing beyond this. There is no such thing as breeding Malay from Game, or Dorking from Cochin, or Muscovy from an Aylesbury Duck. Strange things are sometimes heard of; but in those instances there can be no doubt that the birds whence sprung the anomalies were themselves impure and cross-bred, and had thrown back to a distant cross.

If we go beyond our poultry yard, and look among wild kinds, we find this truth borne out. Every species is distinctly separate; and although when domesticated there have been instances of different breeds intermixing, yet the result has always been a hybrid—an animal incapable of increasing or continuing its species. We believe there is no known instance of hybrids in a state of nature. Those most common in a domestic state are between common fowl and Pheasant, ordinary and Muscovy Ducks, Pintail and Wild Ducks, Canada and Barnacle Geese. They have been seen between the Golden and common Pheasant, but very rarely.

Distinguished from these we have a manufactured fowl in the Sebright Bantam. As this is a compound of many varieties of the same species, it retains its productive properties. It is true some difference in shape was desired and achieved; but the main point was feather, or, to speak more correctly, colour. It is hardly necessary to state that every feather is or should be accurately laced, and it was by most skilful and patient combinations accomplished. When, however, these birds are kept apart from all others of the same breed, a few years are sufficient to destroy all beauty; and as to gain certain points it was often necessary to make use of a bird possessing only one of them, joined to positive ugliness in other respects, so, when these birds are left alone, and the combination that made them handsome is not renewed, they seem to lose everything that is pleasing to the eye, and become uglier than any other, showing principally the most objectionable parts only of those birds from which they were made.

In this instance, then, like does not produce like; but the law of Nature shows itself in this as in other things, wise and immutable. One chemist, by a skilful combination of various drugs or minerals, may succeed in forming that which he requires; but if it be left to itself and inspected after a time it will probably be seen the component parts have already divided themselves. Just so in the Sebright Bantams: the two colours, no longer skilfully blended or divided, become patches, the accurate comb becomes a deformity, and the once beautiful breed is to all intents and purposes a mongrel. In a distinct breed—as for instance Cochin or Dorking, no period of interbreeding will cause it to assume the appearance of any other breed. Degeneracy shows itself by stunted growth, crooked limbs, and large joints; its effect on colour is to increase white just in proportion to the growing weakness of the animal. Like produces like in every pure breed; but it is impossible to get one variety from another, unless at some time there had been a mixture of it in the parent.

VARIETIES.

THE HEMEL HEMPSTEAD POULTRY AND PIGEON SHOW.—This Show, which will be held on the 29th and 30th inst., promises to be even more successful than in former years; 650 entries have been made—poultry 405, Pigeons 245. When it is remembered that the poultry must in all cases be birds of 1880, and that in the local classes birds must have been hatched and reared by the exhibitors residing within a radius of twelve miles, the result must be considered very satisfactory. All the classes (fifty-seven) have received the requisite number of ten entries, with the exception of those in the open classes for Hamburgs, Polands, Langshans, Scotch Greys, and Sebright Bantams, which have been erased from the list in accordance with Rule 3; the entry fees with an allowance for post-office order and postage having been duly returned to those exhibitors who made entries in those classes. The local classes have been filled without any exception, and many of the open classes are very strongly represented. The prize money has been deposited in the Bucks and Oxon Bank, and will be forwarded by cheque together with the prize cards, to the successful exhibitors on the day succeeding the Show. Mr. M. Leno will judge in the open classes, *vice* Mr. Cresswell, who retires from the office of Judge, as the Show this year is not held under the rules of the Poultry Club.

— **ROYAL AGRICULTURAL COLLEGE.**—Mr. John Scott has been appointed Professor of Agriculture and Estate Management in the Royal Agricultural College at Cirencester. Mr. Scott studied agriculture at the University of Edinburgh, and has had many years' practical experience in farming, estate management, and land valuing, both at home and in the colonies. He is the author of two well-known books on farm and estate valuations, and was formerly Editor of the *Farm Journal*.

— **EFFECTS OF THE HARVEST.**—Whatever may be the reports about the harvest from different parts of the country, the returns from the Statistical and Corn Department of the Board of Trade are most satisfactory. The price of Wheat, Oats, and Barley was considerably lower last week than it has been for any corresponding week for several years past. The average price of Wheat last week was 39s. 11d. per quarter, or 8s. 2d. per quarter lower than it was for the corresponding week for the preceding four years. The average price of Barley was 33s. 5d., or about 8s. 2d. cheaper; and the average price of Oats was 20s. 7d. per quarter, or about 4s. per quarter lower than it was for the corresponding weeks for the preceding four years.

— **GOAT SHOW.**—The Goat Show at the Alexandra Palace proved a great success, a large number of these interesting and useful animals being exhibited. The first prize for a he Goat was won by a remarkable animal belonging to the Baroness Burdett-Coutts, a Hungarian Goat of great size. Mr. G. Tredgold was placed second with a finely formed animal. The development of the size of Goats is one result which the British Goat Society hopes to attain by the discouragement of too early breeding. Mr. Stephen Holmes Pegler, the Hon. Secretary of the British Goat Society, the Judge at this Show, sent to the Exhibition (though not for competition) a most interesting animal—the Angora or Mohair Goat. Among the foreign Goats were some belonging to Lady Emily Pigott, including a Spanish Goat. Mr. Clarence Bartlett, one of the prizetakers, showed a Nubian Goat. According to Mr. Pegler, who is the author of a book on Goats, these are the "points" to be looked for in a good milch Goat:—She should be "as large as possible in size, with small compact head, broad at the forehead and narrow about the muzzle, eyes large and prominent, the shorter the horns the better (those devoid of any being usually very good milkers), ears large and somewhat pendulous. The hair of the body should be tolerably short, hard, and stiff, and not too abundant. Large teats are almost as essential as a big udder." It was interesting to note the number of Goats coming up to this standard at the Exhibition. One of the finest was shown by Mr. Crookenden, but which only secured a second prize because of its breed not being considered so purely British as Mr. Clark's, which accordingly took the first prize in a class entitled British she Goats. Babylonian, Dutch, and Circassian Goats are exhibited, and a number of kids of different varieties. The Show was ably managed by Mr. Wilson, late of the Crystal Palace.

— **THE SPEAKER ON FARMING.**—At Glynde Harvest Home, on Saturday, the Speaker of the House of Commons gave his annual address to those engaged on his estate. He said he had been a farmer thirty years, and throughout that period had keenly watched the harvest periods from year to year. The weather during the late harvest had been among the best ever enjoyed, so far as his knowledge went. He thought he could speak with confidence in stating that the harvest period of last year was one of the worst on record. He had prepared a statement showing the rainfall, sunshine, and number of rainy days during the months of January to September 1879-80. The facts were very interesting. They showed that in August of last year the fall of rain was nearly 6 inches, while during the corresponding period this year the depth in the district was less than an inch. The average rainfall of the district was rather over 2 inches per month, and therefore the disastrous consequences attending the great additional quantity of rain last year were easily understood, as well as the beneficial effects of the decrease during last month. He feared that 1879 was a most disastrous year to those engaged in agriculture, both owners and occupiers. It was satisfactory, however, to know that while two classes had suffered greatly, those actually

engaged in the cultivation of the land had suffered no diminution in their wages, and they had brought to them supplies of food from all parts of the world at the cheapest rates. There are some who believed the English farmer cannot successfully compete in food production with his rival in the Western World; but he had no misgivings on that score, provided we were blessed with average seasons.

— **THE FOWL OMNIBUS.**—Now that the crops are pretty well carried, and the ground is dry and hard, there is the best chance possible for the farmers' wives to insist upon the institution of a fowl omnibus or two on every farm. This simple and too-much-ignored apparatus consists of a travelling waggon, which may be of almost any shape and size, from that of a railway carriage to that of a bathing machine. A moveable house, such as many gipsies use, would answer the purpose admirably; but nothing is better than the vehicle from which it derives its name, and which is the most durable as well as the most capacious to be found. The inside of the carriage, whatever it may be, is prepared for its new use by being cleared of all its usual fixings and adornments, and provided in the place thereof with a great number of perches fixed crosswise from the roof to within a few feet of the floor, and arranged so that each row is a little on one side of the one above, and not directly beneath it. Upon these perches the fowls roost in rows, and they can be packed very close indeed as long as there is plenty of ventilation at the top, and the floor is well strewn with sand or sawdust. The manner of employing the fowl omnibus is this: As soon as a corn field is cleared of crops it is wheeled out to the stubble with all its occupants safely shut in. The door is then opened, and they either fly or walk down a convenient causeway constructed for the purpose. The stubble affords them not only abundance of food of great variety—both grain, insects, and earthworm—but also a spacious recreation ground over which they roam at large. Towards evening they are said to be always ready to return—tired, but contented—to their shelter, when the door is shut and secured, and the happy family is left in peace till the morning, or wheeled back to the yard if there is any fear of nocturnal thieves. When one pasture ground has been well cleaned a move is made to another, and the chickens are thus kept going for weeks without any expense, and return to the poultry yard in excellent condition for being fattened or even slain at once. The land is at the same time immensely benefited by the clearance of slugs, insects, and grubs which the feathered holiday makers have effected.—(*Irish Farmers' Gazette*.)

— **GUINEA FOWLS.**—The domestic Guinea Fowl in ordinary circumstances can hardly be considered profitable poultry, but its character has nevertheless been considerably belied. We have heard it said that it could not be kept on account of the screeching noise it makes; but we cannot understand how anyone objecting on that ground can abide the noise of an ordinary cock, much less of an ordinary farmyard; since, disagreeable as the cry is (resembling the noise of a creaking axle more than anything else we can think of), it is very seldom heard near the house. Sounder objections are found in the straying proclivities of the fowl; its disposition to lay away, by which many eggs are lost; and its pugnacious habit of beating other varieties of poultry. But for this latter trick it would long since have been naturalised as a game bird, having been turned into covert with perfect success; but it was soon found that the Guinea Fowls drove away other descriptions of game to such an extent that the birds had to be destroyed on that account, the Pheasants being most valued. As a domestic bird, however, these bad qualities are susceptible of much amelioration, provided the treatment be kind and good. It is almost hopeless to commence a stock with adult birds; directly they are left at liberty they are "off," and probably never return. But by setting eggs under common hens, and rearing them at home, they grow up much tamer, and will flock round the person who feeds them, and even allow themselves to be taken up and petted, like other poultry. When reared thus kindly, and secluded nests are provided, they will generally lay in the house; and if perches are placed high for them, and they are regularly fed every night, will roost at home also. So far domesticated they will pay to rear in places where they can have ample range for their flesh alone, which

is most delicious, resembling that of the Pheasant. The hen lays from sixty to a hundred eggs per annum, the eggs being rather small, very pointed at the end, and of a dark cream colour. These eggs are of beautiful flavour, and there is considerable demand for them in London, where we have often seen them exposed for sale in little baskets lined with green moss.—(From *The Illustrated Book of Poultry* for April.)

THE PROFESSORSHIP OF APICULTURE.

[A CONVERSATION.]

MR. B.—I daresay you are aware, Mr. P., that there is now afloat in the bee-keeping community the idea that we are going to have in England a professor of apiculture. I have come here to-night with the hope that you will let me have your opinions about the matter. I should like to know if you think the country is ripe and ready for a professor, and also if it is possible to find a gentleman ripe and ready for the professorship.

MR. P.—I am aware that there has been some talk about having a professor, but whether the bee-keepers of Great Britain would attach much importance to such an appointment I cannot say. On this point there will be a difference of opinion. If a qualified and suitable gentleman be found and he accepts the office I believe the appointment would be an advantage to the nation, and if an unqualified person get the appointment it will be a misfortune for the nation. Such a person would do more harm than good.

MR. B.—In what ways would a qualified and able man do good as a professor?

MR. P.—His appointment to the office would raise him to the highest platform of teaching and give him a nation to instruct. His utterances would be extensively quoted by the periodical press of the country, and be well read throughout the land. The responsibility of his position would cause him to ponder deeply every phase of apiculture, and cause him to take broad and commanding views of his profession. His language, spoken or written, would be clear and weighty, and his teaching would generally follow and run on the lines of his own experience and seldom in advance of it. A professor of apiculture should be a person of very extensive experience—one who has managed and can manage bees successfully and profitably, and well able to tell others how to do it. As a lecturer he should possess the power of free speech—the power of interesting an audience and commanding attention—the power of leaving his mark behind him as the horse does of his hoof. Such a man would be a light in the world, and a boon to his generation and country if installed as a professor.

MR. B.—Have we such a man amongst us at the present time?

MR. P.—This is the question of questions, often put to myself by myself during the last three months, and I dare not speak confidently on this point. In my humble opinion there is at least one gentleman amongst us qualified for the chair of a professor of apiculture; but as the proposal of having a professor may never be crystallised into shape, or receive the sanction and approval of the authorities, it would be premature and over-officious to name anybody.

MR. B.—Well, but I think the matter should be talked about and well ventilated by advanced bee-keepers, so that the best man may have the post in the event of the authorities deciding to have a professor. I believe with you that harm instead of good would result if an unqualified man were to receive the appointment.

MR. P.—You see, Mr. B., that the first professor would have no precedent and no parallel in this country, and therefore if an unqualified man were to be appointed to the office he would probably be allowed to remain in it for many years. Without ability to teach from his success and experience he would naturally fall back on the statements and guesswork of other adventurers. A professor of apiculture should not live and move in a sphere of speculation, neither should his time be wasted among the knick-knacks of bee-keeping. What is wanted is a man who has made money from bees, and who will show the people how to obtain honey.

MR. B.—Would you pay such a man well, and forbid trading of every kind on his part for profit?

MR. P.—Yes, I would vote for his having a handsome salary, and forbid his trading in hives and bees for profit, for in my opinion such conduct would undignify both himself and office, and tend to make him appear small and impotent for good in the eyes of all around him. For instance, Mr. Ollerhead's lecture on bees had more influence than any other lecture we have had for a long time, simply because it was disinterested and free from oneness.

Now, Mr. B., I have told you all I have to say at present about

a professorship of apiculture. If a competent person can be found who will accept the office I will vote for him, and vote for his being well paid, supported, and encouraged. I would suggest and vote for his having an apiary of twenty or thirty hives kept solely for experiment and comparison, and would vote for his having an assistant to carry out his experiments while he is absent on a lecturing and manipulating tour in the provinces. Those who have the arrangements to make touching a professorship should aim at efficiency and completeness. It were easy to name scores of problems in the natural history of bees that require solution, and as the times bring no second Huber, the professor and his assistant would find work enough at home and abroad in connection with their profession.

That bee-keeping will yet become a source of profit and pleasure to thousands of the rural population of this country I firmly believe, and therefore hope that the proposal of having a professor of apiculture will soon become an actuality in the appointment of a competent man who will stimulate attention and guide bee-keepers in the right direction.—A. PETTIGREW.

OUR LETTER BOX.

Selling Honey (A Honey-eater).—If bee-keepers obtain more honey than they can readily sell locally we presume they would advertise it. We suspect there are many honey-eaters besides yourself who would prefer to purchase "30 lbs. or more" direct from the producers than from grocers and chemists.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51°32'40" N.; Long. 0°8'0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1880. Sept.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun. 12	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
	29.685	61.0	56.8	S.W.	61.5	69.8	51.9	113.2	48.4	0.410	
Mon. 13	29.645	59.8	56.3	N.	61.0	65.5	54.2	116.5	53.0	0.088	
Tues. 14	29.623	57.9	55.0	S.E.	60.0	64.2	46.8	100.8	43.1	1.178	
Wed. 15	29.254	55.4	53.6	W.	59.0	64.4	53.3	113.2	51.2	0.441	
Thurs. 16	29.481	58.4	55.4	N.	58.4	68.1	50.4	119.2	48.8	—	
Friday 17	29.835	58.8	56.0	N.	58.2	67.4	49.4	117.2	43.2	0.090	
Satur. 18	29.718	58.0	56.8	S.	58.3	63.5	52.3	115.2	48.4	0.308	
Means.		29.606	58.5	55.7	59.5	66.1	51.1	113.6	48.0	2.515	

REMARKS.

12th.—Fine bright breezy day; overcast evening.
 13th.—Early morning fine, T. 11 A.M. and heavy shower; thunder 1.5 P.M. till 1.20 P.M., heavy rain 1.45 P.M.; fine afternoon and evening. Lunar halo.
 14th.—Showery morning; afternoon fine; rain 7.30 P.M., very heavy 8.15 P.M. and 10.30.
 15th.—Heavy rain in morning; afternoon fine with sunshine for short time; cloudy evening.
 16th.—Fine day, cloudy at intervals; misty in evening; lunar corona; bright moonlight 11 P.M.
 17th.—Fine bright day; moonlight night.
 18th.—Stormy morning; rain and high wind, fine with sunshine in middle of day; very heavy shower, with lightning, thunder, and hail 2.30 P.M., fine and sunny after 3 P.M.; starlight evening.—G. J. SYMONS.

COVENT GARDEN MARKET.—SEPTEMBER 22.

THE supply of Plums is now falling off and Apples are well taking their place prices all round being thoroughly maintained. Trade steady.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½ sieve	2	6 to 4	6	Melons	each	2	0 to 4	0
Apricots.....	box	0	0	0	Nectarines..	dozen	2	0	8
Cherries.....	½ lb.	0	0	0	Oranges.....	½ 100	0	0	0
Chestnuts.....	bushel	12	0	16	Peaches.....	dozen	3	0	10
Figs.....	dozen	0	6	1	Pears, Kitchen..	dozen	0	0	0
Filberts.....	½ lb.	1	6	1	dessert	dozen	2	0	3
Cobs.....	½ lb.	1	6	1	Pine Apples...	½ lb.	1	0	3
Gooseberries...	½ sieve	0	0	0	Plums.....	½ sieve	2	6	4
Grapes.....	½ lb.	0	9	3	Walnuts.....	bushel	0	0	0
Lemons.....	½ 100	12	0	18	ditto	½ 100	0	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms.....	dozen	1	0 to 1	6
Asparagus.....	bundle	0	0	0	Mustard & Cress..	punnet	0	2	0
Beans, Kidney....	½ lb.	0	0	0	Onions.....	bushel	3	6	5
Beet, Red.....	dozen	1	0	2	pickling	quart	0	0	0
Broccoli.....	bundle	0	9	1	Parsley.....	doz. bunches	6	0	0
Brussels Sprouts..	½ sieve	0	0	0	Parsnips.....	dozen	1	0	2
Cabbage.....	dozen	0	6	1	Peas.....	quart	0	9	1
Carrots.....	bunch	0	4	0	Potatoes.....	bushel	3	9	4
Capicums.....	½ 100	1	6	2	Kidney.....	bushel	4	0	6
Cauliflowers.....	dozen	0	0	3	Radishes....	doz. bunches	1	6	2
Celery.....	bundle	1	6	2	Rhubarb.....	bundle	0	4	0
Coleworts....doz.	bunches	2	0	4	Salsafy.....	bundle	1	0	0
Cucumbers.....	each	0	4	0	Scorzonera.....	bundle	1	6	0
Endive.....	dozen	1	0	2	Seakale.....	basket	0	0	0
Fennel.....	bunch	0	3	0	Shallots.....	½ lb.	0	3	0
Garlic.....	½ lb.	0	6	0	Spinach.....	bushel	3	0	0
Herbs.....	bunch	0	2	0	Turnips.....	bunch	0	4	0
Leeks.....	bunch	0	3	0	Vegetable Marrows	each	0	2	0



30th	TH	Sale of Bulbs at Mr. Stevens' Rooms, Covent Garden. 19TH SUNDAY AFTER TRINITY.
1st	F	
2nd	S	
3rd	SUN	
4th	M	
5th	TU	
6th	W	

THE ROSE SEASON OF 1880—A RETROSPECT.

AS the Rose season may now be said to be over I propose, as I have done in previous years, to give my review of it as far as it has come under my own knowledge. It must be borne in mind by my readers that it is only an individual opinion that I express, and that, although I have many facilities for forming that opinion, yet it may be, and perhaps is, in some particulars altogether wrong. My travels in the cause of the queen of flowers have led me to many places. I have acted as judge on many occasions, have seen many gardens where the Rose is made the object of culture; but instead of going into details (which indeed I have already in many cases done) I shall state in general terms a few things which have struck me.

Although, according to the Yankee notion, you should never prophesy unless you are sure, I did venture to express my belief that, owing to the peculiar character of last winter, we should have a lengthened season, that Roses would bloom irregularly, and hence we should have them for a long time; and so it has proved. The summer blooming has so prolonged itself that there has hardly been a break, and I was continually receiving letters all through August as to the beautiful blooms the writers were gathering; but with even this allowance it cannot be said that it has been a good season, the long dry weather of May and June, and then the deluges of July with its thunderstorms, made it anything but favourable to the Rose. Persons who grow them by thousands can always cut fine blooms. Their maiden plants come to the front, but the ordinary amateur has had to mourn over his best Roses destroyed by rain, and continuous deaths amongst those plants which the winter had seemingly spared. Again has the National Rose Society had to say that their exhibitions, although good, have not been what they ought to have been. Indeed only once during the four years it has existed has there been a favourable season, when the Show was held in St. James's Hall: something exceptional in the weather has marred their hopes. At the Crystal Palace a large number, and at Manchester quite one-half of the entries, failed owing to the unpropitious weather; while in many smaller shows it would have been ridiculous if one did not feel how much disappointment must have been caused to see the poor little things draggled and torn that did duty for Roses. The past winter gave many lessons which will be of value in the future, not the least of them being, I think, that when Roses are hit so hard by frost it is better to prune them down almost to the ground; for in how many instances has it not been seen that

Roses which had seemingly escaped afterwards succumbed? I have seen this very marked in two gardens very widely apart—that of my friend Mr. Tinsley in Cheshire, where I had noticed in May unmistakeable signs of decaying wood, and where I feared complete failure would ensue, but where in July after very hard pruning down to the ground most vigorous and healthy plants bearing grand blooms were everywhere to be seen; the other that of our much-respected Vice-President of the National, Mr. Baker of Reigate, where the plants which had been most closely pruned right down to the very ground had broken out into grand growth, and where the flowers in August were quite equal to those shown in July; so that in one way at least the unpropitious season tended to the enjoyment of the Rose-grower by prolonging the season of enjoyment.

Another very noticeable point was the manner in which old Roses came to the front. While last year there were few Roses and still fewer stands on which we could dwell with satisfaction or cherish their memory, this year there were many which will not easily be forgotten, and especially amongst the older flowers. Was there ever such a triplet of Général Jacqueminot seen as that in Mr. Cranston's stands at the Crystal Palace? And how grandly Beauty of Waltham, Marie Rady, Dr. Andry, Due de Rohan, Lord Macaulay, Madame Victor Verdier and other dark Roses came out! showing that while here and there amongst the new ones a gem is to be found, older Roses still form the staple from which exhibitors draw their supplies. On looking over my notes and calling to mind the many excellent flowers that I have seen, I would say that the box of thirty-six exhibited by Mr. Jowitt at the Wirral Show was the most nearly perfect stand that I have seen; that the best twelve Roses of any variety were either the Alfred Colomb of Mr. Jowitt at Manchester or the Marie Radys of Mr. Cranston at the Wirral Show; and that the best bloom I saw the whole season was the Alfred K. Williams shown by Mr. Wollaston of Reigate at the Brockham Show—it was simply exquisite, so brilliant in colour and perfect in shape. That we have some good Roses amongst the newer varieties I think will not be denied, but these would require more detailed consideration by-and-by; but the past season may well encourage those who are still dependant on the older varieties for their enjoyment and for the purposes of exhibition.

I think one of the most noteworthy results of the season has been the collapse of the much-vaunted Stapleford Roses for exhibition. I have attended a good many shows, but I think the number of blooms of those Roses might be counted on the fingers of my hands; and I have no hesitation in saying that in every case they made a point against the stand rather than in its favour. In all directions that I have been I made inquiries of those who have proved these Roses and tried them, and in no case did I find that they gave satisfaction. It must be remembered that Mr. Bennett submitted these Roses to no tribunal. The descriptions he gave were his own; and the public, misled by their glowing character, and not a little led astray by the reporters of some of the gardening papers, bought, vulgarly speaking, "a pig in a poke," and they cannot be congratulated on the result of their misplaced confidence. Of this we may feel tolerably certain, that if Mr. Bennett tries to put out another set he will find the reception very different to that with which his first set met. If there are any who have found these Roses different to what I and all those with whom I

have spoken with have, I hope they will make their opinions known. It is no pleasure to have to condemn, and I should be very glad if my judgment were proved to be incorrect; but it was only the other day I was accosted by the head of a very well known London firm, who asked my opinion. When I gave it he said, "It exactly accords with my own; and I am very thankful that I have sold very few of them, for I know what my customers will say."

It is very gratifying to observe the increased love of the Rose. Notwithstanding the terrible discouragements of the last two years, and how largely our National Rose Society is contributing to this good work, each year sees some new exhibitors coming forward, not only amongst the smaller growers, but amongst those who are destined to carry off some of the highest honours that the Rose confers; but it may not be amiss to sound one little note of warning, and that is the possibility of the valuable prizes which are now offered leading exhibitors to be carried away by the desire of obtaining them rather than of what may be to the interests of the Rose and its extended culture. If, for instance, in the matter of dates to be fixed for exhibitions, each grower considers only what is most likely to be the condition of his own Roses and not how it may suit the general mass of exhibitors; or if where classes are made and evidently only intended for smaller growers, a large grower, finding that he is unable successfully to compete in his usual place, enters amongst the classes from which it was intended to exclude him, I am afraid the Society will be shipwrecked. I have never known any Society that can stand against such influences as these. I have known many a successful one come to grief because self-interest came in to destroy like a cankerworm its fair promise, and it is in consequence of this that I would lift up my warning voice. In so doing I have at least one claim to be heard. I am no exhibitor myself, and therefore I have no cause to complain of any injury done to me. I desire only to see the Rose and the Rose Societies now established throughout the kingdoms prospering, although I can well understand how the feelings of an exhibitor may be lacerated. It was a quiet piece of sarcasm uttered by a small exhibitor when he saw himself defeated in one of the smaller classes by a large grower—"I think, sir, we ought to make a class for three blooms to admit Mr. —."

On the whole, then, there is much to encourage Rose-growers. We have not yet seen what a thoroughly good show of the National ought to be; for although that at St. James's Hall was grand, there was no space sufficiently large to show the blooms, and since then we have not had a really good Rose season. Let us hope that a good time may be coming, and that Rose growers and Rose exhibitors may equally with the farmer look forward to next season with brightening hopes and expectations.—D., Deal

DEATH OF MR. ARTHUR VEITCH.

It is with extreme regret, which will be shared by a wide circle of friends in this and other countries, that we have to announce the somewhat sudden death of this estimable gentleman, which occurred at his residence in Chelsea on Saturday last the 25th inst. The deceased became a partner in the great firm of Messrs. James Veitch & Sons on the death of his brother Mr. John Gould Veitch, and he was most assiduous in sharing the conduct of the business under the directions of the active senior partner and present proprietor, Mr. Harry J. Veitch. Mr. Arthur Veitch, during a short and unblemished life, has left a vacancy which will not be easily filled in the district in which he resided. He was not only diligent in business, but laboured with extraordinary zeal in promoting the moral and spiritual welfare of the inhabitants of a populous suburb of the metropolis, his whole spare time having been devoted to the spread of religion among the masses. Visiting the sick, comforting the aged, seeking out those who were in need of aid and consolation, constituted, apart from his business duties, the life work of this truly good and philanthropic man. The amount of good that he has done in this respect none can know; but all who knew him will grant most readily that he was ever willing

to devote himself, at whatever apparent personal inconvenience, to the welfare of others. He was a devoted husband, an affectionate parent, a trusted friend, and a kind employer; and it is not too much to say that thousands will mourn his loss and cherish his memory. He had only been confined to his room about a fortnight when he was called to his reward. He was only thirty-six years of age, and leaves a widow and five children, who will have hosts of sympathisers in their great bereavement. When the majority of our readers peruse these lines the remains of the deceased gentleman will have been deposited in the Brompton Cemetery, the time fixed for the funeral being 10.30 on our day of publication—Thursday morning.

THE GREAT POTATO SHOW.

No one who has not seen one of the International Potato Shows can form a conception of its appearance, and the Show of last week was stated on authority to have been the "finest of the kind that has ever been seen in England." The number of dishes was extraordinary, and the size and appearance of the tubers marvellous; there were whites, and purples, and pinks, and roses, and salmons, and reds; rounds and ovals, and flats and kidneys, all "artistically" disposed on a length of apparently nearly three-quarters of a mile of tabling.

The Show evidenced great activity on the part of the directorate, great enterprise on the part of the nursery and seed trades, great labour and cultural skill on the part of the cultivators and exhibitors, and great competence on the part of those who arranged the collections so orderly and systematically. When a committee can gain friends sufficient to contribute prizes of the aggregate value of £110 in fifty-two classes, while its own share is only £5 5s. in six classes, when new members are charged entrance fees varying from 5s. to 2s., and the Crystal Palace Company probably grants a subsidy to the funds, that organisation ought to be extremely prosperous. The Show appears to be really a gigantic trade affair, and was certainly "billed" well by those who had invested in it, for with the exception of some half a dozen gentlemen the whole of the extra prizes named were given by Potato vendors.

The weight of the produce exhibited could not have been less than 20 tons, and it is a question if there were more than one ton of tubers possessing the requisite high quality for a well-appointed table. The varieties esteemed for their cooking qualities were conspicuous by their absence. There was a thin sprinkling of the Ashtop varieties, perhaps half a dozen dishes of Victorias, and less of York Regents. The round Potato of the Show, a tuber of good appearance and cooking quality, was undoubtedly Schoolmaster, while among kidneys Magnum Bonum was in large force and fine form. The Scotch Champions alluded to in your report perhaps carried off the palm for ugliness, and judging by appearances there is not much wonder that Mr. Luckhurst has discarded the variety, especially as he can ensure an ample supply of Victorias; had he decided otherwise under the circumstances I for one think he would not have exercised sound judgment. Woodstock Kidney was in fine condition, and International Kidney very large, some with other varieties on Messrs. Webbs' stands being of enormous size. Of the new varieties Wormleighton's Kidney was distinct and promising; it is white faintly tinted with rose, and regularly sprinkled with dark dots. It was stated to have been raised by Mr. J. Wormleighton of Guilsborough, Northampton, by crossing the Belgian Kidney with Early Rose. Of the new rounds the Lord Mayor is a large and rather deep-eyed tuber, and not to my mind by any means equal to Mr. Ross's variety Dux—a smart round tuber of the Victoria type. Red Defiance, raised by Mr. Millen, Hamstead Park, Newbury, and staged by Messrs. C. Lee & Son, was very good of its kind. Mr. Bresee, a long red kidney, was splendid, while the red round Vear of Laleham is popular as an exhibition tuber; and Mr. Fenn's Sulhampstead Kidney, red, and Mr. Lye's Wiltshire Snowflake, flattish round, had many admirers. I cannot, however, particularise every variety of note, and it will be convenient to myself and possibly to your readers to name those varieties in the different sections that were shown in the greatest numbers and best condition. They are as follows:—

White Kidneys.—International, Myatt's Prolific, Jackson's Improved, Woodstock Kidney, Covent Garden Perfection, Yorkshire Hero, Snowflake, Edgeott Seedling, and Pride of America.

Coloured Kidneys.—Mr. Bresee, Trophy, Superior, Red Defiance, Red Ashleaf, Salmon Kidney, Garibaldi, Wonderful, Beauty of Hebron, and American Purple Kidney.

Round Whites.—Schoolmaster, Early Goodrich, Rector of Woodstock, Porter's Excelsior, Davidson's Surprise, Model, White Emperor, and Sim's Early Seedling, and Wiltshire Snowflake.

Round Reds.—Blanchard, Vicar of Laleham, Grampian, Red Emperor, Triumph, and Fenn's Cricket Ball.

Those who desire to "go in" for exhibiting Potatoes may with confidence make a selection from the above varieties, and if they grow them well and stage them without spot and blemish, and of good size, they may hope to have a place in the prize list. I have said of good size, for it was observable that all the best prizes went to Potatoes that were decidedly too large for a gentleman's table; and another thing was noticeable—namely, all the principal prize collections contained varieties the great majority of which will never be of use for culinary purposes. Potatoes of this character largely predominated, and this, I presume, according to the fashion of the day, is termed "improving" the Potato.

A great number of people are asking, "What good is such a Show? What use is it growing Potatoes that will not be eaten?" I heard such questions as these a hundred times, and they elicited few satisfactory answers. It is clear, too, that the Potato shows are no great attraction for the general public. The attendance was disappointingly thin, and only gardeners and "fanciers" appeared to take real interest in the display, and at least half the former could not see the utility of growing Potatoes merely to be looked at. One of them cogently observed that "if there was a Melon show he supposed the prizes would not go to the fruits of the worst quality simply because they looked the best."

The awards were being closely criticised by several competitors, and there was little grumbling. By far the most fault was found with the first-prize collection of twenty-four varieties, not because the tubers were not fine, but because it was alleged there were not twenty-four distinct varieties. Not a few "fanciers" asserted there were only twenty-two really distinct dishes. At one end of the lot was a fine dish of Blanchard, at the other one of White Emperor. The tubers of the latter were decidedly red round the eyes, but not nearly so red as the former, yet it is undeniable that there were many dishes of Grampian in other collections as pale in colour as this dish of White Emperor, while the White Emperors in other portions of the Show were really white and not "red-ended." I pass no opinion on this point, as Potatoes vary much in different soils. All I know is the tubers of the two dishes were identical in form but different in colour; in one they were darkly streaked with red round the eyes, and in the other faintly streaked. The other alleged duplicate dishes were Beauty of Hebron and Early Ohio. On this point one thing is quite clear—namely, there were many dishes of Beauty of Hebron in the Show identical in the form of the tubers, size, colour, and the arrangement of the eyes with the Early Ohio as staged in this collection; and another thing is equally clear—in Messrs. Daniels' collection there was a dish of Early Ohio which was manifestly dissimilar from the dish referred to. The matter, therefore, comes to this—if Mr. Dean's Early Ohio is true, the one sold under that name by Messrs. Daniels is not true, judging at least by the form and colour of the tubers staged in the two collections. I allude to this subject because it was the one topic of discussion when I visited the Show. In some of the classes the Judges had taken a slice off some of the tubers that had a close outward resemblance, and the colour of the flesh generally determined the point at once. It would have been satisfactory had this test been applied to the tubers indicated, for as the matter now stands it is indisputable that some practical "fancy Potato-growers" and successful exhibitors are firm in the conviction that the collection in question did not contain the requisite number of distinct varieties.

Although a great number of people subscribe to the Potato Exhibition, and with the object of improving the Potato as an article of food, others appear to estimate its value by its price per pound or peek. The shows have failed hitherto to bring out any new Potatoes of special excellence for table purposes; but on the contrary, varieties of known high quality are each year represented in less numbers than before; those of imposing appearance, however bad the tubers may be as "cookers," finding most favour with the Judges.

But if failure has resulted in this phase of the subject, success has been achieved in the other object of the Society. A better and more intelligent system of culture has been instituted, which ought to exert a great and widespread influence for good on Potato culture generally. Since the introduction of new and costly fancy varieties much thought has been given to the selection, preparation, and storing of the tubers, also to the management of the soil, planting, and manures. The same care cannot be practised in planting, say, 10 acres of Potatoes in a field as a few rods in a garden, yet the general principles that are found

of value in the former case are to a great extent applicable to the latter, and great good ought to result generally. The prizes offered have encouraged the culture of fancy and show varieties, and a better system of culture has been instituted, so that a gardener can grow a few Potatoes for showing, and by according the same system of culture that is necessary to grow them well to the main crops for cooking purposes, these crops are better than before. Thus nothing is lost in usefulness, the newer varieties being grown in addition to, and not instead of, those best adapted for culinary purposes. Potato shows have therefore done good culturally; yet something more than a mere show seems to be wanted to render the gathering really instructive.

A foreign competitor, Mr. Osear Mooyer of Angermünde, North Prussia, staged a collection of upwards of forty varieties. The tubers were mostly small and poor in appearance, yet no collection attracted more attention, from the fact that the average percentage of starch each variety contained was stated. This is a step in the right direction, for without some such information, approximative though it be (for it is presumable that the amount of starch varies under varying conditions), it is impossible to form even a vague idea of the culinary value of the newer varieties that are exhibited. If the Directors of the Potato Show could obtain some land for cultural and experimental purposes it is reasonable to suppose they might make it "pay," and at the same time obtain and disseminate valuable information relative to the most important of all root crops.

It is curious to notice in the starch per-centages above referred to that Champion heads the list with 22, a somewhat startling result, while Victoria is only credited with 17 per cent., Peachblow and Magnum Bonum the same. German Reds closely follow the Champion with 21 per cent., and the lowest per-centage of all (ten) is attached to International Kidney, the finest Potato in the Show, but "not fit to eat."

In the shows as at present satisfaction is mixed with disappointment, and something more is needed to meet with anything like the general approval of the Potato-growing public.—A GARDENER.

To all interested in the Potato who had no chance of seeing or taking part in the International Show, your excellent report of it must have been particularly pleasing. If we may judge by the numbers and appearance of the tubers shown, some parts of Wales must be more unfortunate in the disease this season than other parts of the country, as many of the varieties named have been all but lost; but it is well known that only the very pick of the country is shown at such places, and a grand display may not indicate perfection in the crops generally, any more than the exhibits at an international poultry show would prove that all the fowls in the country equalled in quality those shown. Be this as it may, however, there is one thing sure enough—if the International brings out the largest and best-looking tubers to give prizes to, it certainly does not honour eating qualities. This is what many would like to see done; and if liberal prizes were offered for dishes of cooked Potatoes, many varieties which are at present ignored for their small ordinary size and rough coat would come well to the fore. No worse Potatoes could be grown for eating than Beauty of Hebron, Snowflake, Climax, Garibaldi, American Purple, Blanchard, Trophy, Early Vermont, International, Salmon Kidney, Bresec's Prolife, and many others named in the winning collections; while Scotch Champion, Paterson's Victoria, the Dunbar Regent, and others of the true mealy fine-flavoured character are not named. Were a number of prizes given for the best-flavoured Potatoes, it would be an excellent indication to those who wish to grow good-flavoured varieties irrespective of mere size and appearance. Some of those varieties named by me at page 251 would probably not be noticed in a show class of rounds or kidneys, but, as was stated before, they resist the disease, and are excellent when properly cooked. It must not be inferred that I am against Potato shows, but I am sorry to see quality so much in the background.

Besides giving prizes for cooked Potatoes next year, I hope the International Committee will debar people from offering prizes and then competing for them. For any coloured kidney variety Mr. R. Dean, Ealing, offered a first prize of £1, and in that class Mr. R. Dean was first. I was amused to see one of your contemporaries state particularly the donors and winners of the prizes, but curiously omit the donor of this; and no wonder, as it shows a principle seldom found in the true gardener's circle, and one not likely to encourage exhibitors.—J. MUIR, *Margam*.

BLUE HYDRANGEAS.—I have just arrived at the Leenane Hotel Co. Galway, the very centre of Connemara, on the edge of Killery Bay, and with the broad Atlantic in the distance, and among the various items of horticultural interest are the above, which I find

in the Hotel Gardens 4 feet high, and with trusses of flowers 14 inches through. The plants were not protected in winter, while Fuchsias are much commoner used as hedges than Furze, especially on the road to Kylemore Castle.—W. J. M.

GRAPES SHANKING.

I CANNOT accept the theory of Mr. Weir that shanking is caused by a fungus. My opinion so far as my experience goes, which is over thirty years, is that there are three causes that induce Grapes to shank. First, badly made, undrained, and over-rich borders; second, growing the Vines in the early stages of growth in a high and moist temperature, and when signs of colouring take place water is withheld, syringing is abandoned, the floors are not damped, and more air is given to colour the berries; third, injudicious stopping at the period of colouring.

My remedy for shanking is a higher and drier day temperature. Grapes never shank on the open wall. Why? Because they have plenty of air, and, as a rule, a high day temperature, with a corresponding low night temperature. Following out this it will be plain that for Vines to be grown in a vapour bath for nine or ten weeks, and then in a drying room, is contrary to Nature's teaching. By raising the temperature early in the morning, and ventilating by six o'clock, or earlier if practicable, and maintaining a high temperature during the brightest part of the day, with plenty of ventilation at the top of the house and moderate openings of the windows in front, a healthy circulation of air will be insured, which will result in dark green foliage, firm short-jointed wood, highly coloured berries, with very little or no shanking.

The condition of the borders must be considered, and unless they receive proper attention it will be impossible to grow good Grapes. Moderately shallow borders of good loam with a liberal admixture of old mortar rubbish and half-inch bones, good drainage, and a liberal supply of water during the time they are stoning and colouring, with judicious inside management, will be found the best treatment to produce Grapes without shanking.—JOHN GADD, *Thorndon*.

[The Grapes received were excellent both in appearance and quality.—EDS.]

FUNGI A RESULT, NOT A CAUSE OF DISEASE.

THE attempt of "S." (p. 280) to refute my statements by a series of assertions unsupported by a single fact or deduction drawn from his own experience throws no light upon the subject, nor does it shake my position in the slightest degree. Evidently he has not been able to detect the presence of fungus spores, or rather mycelium, before the appearance of plague spots; and my reply to his query is simply that I have never been able to detect it till after the disease has laid hold of the foliage, and I have reason to suppose that the microscope which I have used for nearly twenty years is sufficiently powerful to enable me to do so if it were there. It would be rash to assert that the spores were not present upon the surface of the plant before the appearance of disease, for I am strongly of opinion that they are, and remain quite harmless till the diseased epidermis affords a suitable nidus for their vegetation and growth. Let it not be forgotten that the haulm is invariably free from disease till the legitimate growth of the tubers ceases. I may explain that by legitimate growth the swelling of the young tubers is meant; once checked, this never goes on again. It is true that a second growth often happens, but it is a lateral growth in the haulm and supertuberation in the tubers, which are then spoilt. When the first growth ceases, the work of sap-elaboration in the foliage is finished, and decay may be said to begin, and go on for a time imperceptibly. The gradual drying-up of the tissue of the plant would then appear to render it susceptible to the attacks of a disease which it has hitherto been able to withstand. If at this critical time no rain falls the natural process of decay goes steadily on without disease, and a continuance of dry weather brings the crop to maturity without loss. But if rain falls, what I have termed plague spots soon appear, the spores of the fungus vegetate upon them, the mycelium spreads in and from them on all sides with marvellous rapidity, and nothing we then do can avert the loss of a certain portion of the tubers—often the largest and best.

Regarding Peach blister "S." says, "The only evidence adduced in support of the view that the blister is not the result of a fungus attacking the foliage was the generally admitted fact that it is confined to trees occupying exposed positions. This is all that Mr. Luckhurst now advances, and yet it is by no means sufficient to satisfy an unprejudiced mind that his view is correct." Assuming from this statement that "S." is really open to conviction, I may tell him it is no mere view or opinion, but positive assurance that enables me to say that the blister is caused by cold

wind and nothing else. Plant two Peach trees of the same variety side by side, screen one from the wind, but let it be fully open to the air, and there will be no blister. Let the other tree have no screen, so that the cold north-eastern blasts assail its foliage, and it will be blistered precisely in proportion to its degree of exposure. Observe any branch of this blistered tree that has the advantage of any shelter, and you will see it has escaped untouched. So also if one leaf overlaps and covers another, the under covered leaf is unscathed, while the outer protecting leaf is blistered. Do you require further proof? Unfasten a branch of the sheltered tree and pull it outside the screen, so that the wind may play upon it, and its foliage will be blistered, while that behind the screen, and yet fully open to the air, will remain sound and green. All this I have actually done, not simply with two trees, but with many more of various sorts; and I can point to the vigour and productiveness of sheltered trees that are never checked by blister as affording the best proof that fungi never precedes blister; and I deny the right of "S." to assume that microscopic observation is requisite to decide a matter so simple and so clear.

The existence of an analogy between plants and animals is so fully established, and has obtained recognition from so many of our leading scientific authorities, that it can serve no useful purpose to pursue the subject farther here. Niceties of distinction, or rather difference, may be advanced to support individual opinion in opposition to scientific deductions, but such a mode of argument serves rather to confuse than enlighten.—EDWARD LUCKHURST.

HAMPTON COURT GARDENS.

WITH lawns and pleasure grounds of 65 acres, and a hundred flower beds, the majority of them of great size, there is plenty to see at Hampton Court, and much to admire during a fine season. The grand old Palace, with its historical associations, appears to have a perennial charm. Trains and steamboats are ever passing to and from the metropolis during "the season," while travellers from America and the Antipodes, now so numerous, always appear to make a point of visiting the old Palace on the Thames. The State apartments of the building, the fine parks and magnificent trees, the maze, the wilderness, the Vine, the extensive and excellently kept lawns, and the gay and highly finished flower beds, are a combination of attractions not to be found in any other place of public resort.

It is late to see the flowers now, yet while the freshness of summer is over there is still much to be admired. Save that the Alternantheras have lost much of their brilliancy the carpet beds are yet attractive, and with the aid of canvas coverings will remain so until November. Herbaceous borders have a desolate appearance now, Pelargoniums are nearly flowerless, and Calceolarias, &c., are fast fading, yet the carpet beds are fresh, bright, and greatly admired. Mr. Graham being a skilled draughtsman he has no difficulty in producing fresh designs each season, while he undoubtedly possesses taste to display them effectively. Gaudiness and overcolouring are terms not infrequently applied to carpet beds; but these terms do not apply to the beds here, some of which are chaste almost to a fault by the predominance of neutral colours. It were useless attempting a description of these beds; suffice it to say that of their kind they are excellent, and the designs of some of them and the modes of planting them all can be seen in Mr. Graham's pamphlet. It may be said, however, that the popular Mentha, or Gibraltar Pennyroyal, is doomed as a carpet plant at Hampton Court. It is the only plant that has proved unsatisfactory, and this by having been infested with mealy bug. The stems have been quite white with the pest, a remnant of which is left yet notwithstanding the late drenching rains. The green dwarf plant of the future in these gardens is *Herniaria glabra*. It is deep green in colour, free in growth, requires no clipping or plucking, and is perfectly hardy.

Many of the Pelargonium beds have been very fine, and some of them are even attractive yet, notably those with variegated foliage associated with Violas. No one employs these cheerful hardy flowers in the public parks so freely as Mr. Graham does. The varieties of which he has the largest stock are *V. cornuta splendens*, *The Tory*, *Favourite*, and *Blue King*. They associate equally well with silver or gold variegated Pelargoniums, and impart a variety and a charm to those beds that must be seen to be fully understood. Some large beds planted with *Bijou Pelargoniums*, for instance, mixed with one of these Violas and surrounded with a broad band of *Iresine Lindenii* and a margin of the Golden Chickweed, leaves nothing to be desired. As this is the season for propagating Violas, and as their culture is so easy, requiring little or no glass accommodation, those who desire to add a charm to their gardens should grow these plants, if for no other purpose than for mixing with Pelargoniums of the type indicated.

Some mixed beds of another kind are also extremely ornamental; they are totally devoid of formality, and are free yet rich. They are planted with *Iresine Lindenii* and *Abutilon naevium marmoratum*, and a few plants of *Verbena venosa*. The *Abutilons*, about 2 feet high, have large stately and finely coloured foliage, through which the darker yet free groundwork is seen to great advantage. These beds are much and deservedly admired. Another plant that has given great satisfaction this year is Cannell's Dwarf *Ageratum*, which has formed dense blue lines a foot wide and about 4 inches high. There are only a few dozens of plants grown this year, but there will be thousands planted next year in these gardens.

The coming *Pelargonium* for bedding is Henry Jacoby. The few beds that have been seen this year were so striking, that this rich, free, and dwarf variety is being largely propagated for bedding purposes. Mr. Graham has, after taking the tops of the plants, cut up the stems into inch lengths, and is striking them in a little heat, the atmosphere being dry. When this practice is being adopted with a bedding *Pelargonium* now-a-days, when so many are good, it affords sufficient evidence of its value for a particular purpose.

The old kitchen garden attached to the Palace is not open to the public, but Mr. Graham and his friends have ready access. It is in charge of Messrs. Jackson & Son, Kingston, who rent it. About 10 acres are enclosed with lofty walls. These and sundry cross walls are covered with old trees, many of which are bearing good crops. There are 2 or 3 acres of glass—large, lofty, venerable old structures, heavy in appearance, and heated with flues. The Vines are evidently centenarians, and it is surprising to see how admirably they bear under the system adopted by Mr. Latham of constantly cutting out old and training young canes. Some young Vines planted by this excellent cultivator have also made wonderful growth. The Peach house must be one of the oldest extant, and the plan of training the trees is certainly one of the best, probably the very best, for wide and lofty houses. Vertical trellises are formed across the border, reaching from the front of the house to the narrow back path, and from the ground to the roof. These cross trellises are 4 feet apart, and every part covered with bearing wood. By this plan light is admitted to every portion of the back wall, which is also covered with bearing wood from the ground to the roof. By no other plan could so much fruit-bearing surface be exposed so fully to the light, and hence the system is worthy of mention. The crop has been enormous this season, thousands of Peaches having been gathered from the trees. In another house is a small forest of Tomatoes, the trees being planted 2 or 3 feet apart in the border and secured to stakes. A more modern structure is devoted to Cucumbers; it is a low, wide, span-roofed pit, and the crop has been extraordinary. In a division is Vines in pots with hard short-jointed wood—good for either fruiting or planting. Such pits as these, with sunken pathway, and only the roof of glass, are inexpensive and most valuable adjuncts to any garden.

The celebrated old Vine on the other side of the Palace is bearing its usual good crops of useful fruit for the Royal table. There are between twelve and thirteen hundred bunches, averaging about half a pound each. Thus there are a variety of features in this old Palace worthy of notice, and under Mr. Graham's care the enjoyable character of the gardens is admirably sustained.

TOMATO THE CONQUEROR.

IF I have the true variety, as I believe I have, as my seed was from one of the first seed firms in the kingdom, Mr. Iggulden is quite right in his description of Tomato "The Conqueror." I first tried it two years ago against several other varieties, including Criterion, Orangefield, and Exeelsior, and found it earlier, more prolific, equal in size of fruit, and quite as good in flavour as any of the other sorts, and I now grow it exclusively. I have at this time a grand lot growing in a cool house and laden with fruit from bottom to top. They cover a trellis 12 feet high, and with a little help from fire heat will, I doubt not, keep a good supply of fruit till Christmas. All the fruits are more or less corrugated, some of the larger very deeply so, but I do not see that this is any detriment to them.—J. E.

THIS is undoubtedly an excellent variety. It is a good grower, free cropper, early, firm, and of good quality when cooked. It resembles Vick's Criterion in colour, being a reddish crimson, but the fruits are generally larger than those of Criterion, and not quite so smooth. Some of the medium-sized to small fruits may approach somewhat to the smoothness of an egg, but nine out of ten are slightly corrugated. Mr. Iggulden appears to possess the true variety, at least if the one I have endeavoured to describe is true,

and I have no reason to suppose it is not. Your correspondent "SINGLE-HANDED" may also have the true variety—that is, if he has grown his plants in pots and cropped them heavily. Under these conditions the fruits of all Tomatoes are smoother than those produced by plants in rich soil or lightly cropped in pots, the plants being at the same time generously fed with rich top-dressings of liquid manure.—D.

ZEPHYRANTHES CANDIDA.

A CORRESPONDENT, who sent us specimens from which our engraving was prepared, writes as follows concerning the good



Fig. 58.—*Zephyranthes candida*.

qualities of this charming plant:—"I now have scarcely a more attractive occupant of a border devoted to select hardy plants than the white West Windflower which is planted in moderate-

sized clumps. The flowers being freely produced, Crocus-like in form and pure white, render it especially pleasing at a time of year when the borders are fast losing the gay appearance they bore during the summer. In sheltered nooks upon the rockery this *Zephyranthes* is also very beautiful, and may be advantageously planted with the autumn-flowering *Colchicum*.

"It is of easy cultivation; any well-drained border of rather rich soil near the base of a wall or similar sheltered position suiting it admirably. It increases by the production of offsets or young bulbs, which may be separated from the parent plant and transferred either to pots or borders. Seed is also freely produced, but that mode of increasing our stock is slower than the other. However, as an autumn and late summer-flowering plant this species is very useful, and I recommend it to the attention of all lovers of hardy plants."

THE EFFECTS OF ELECTRICITY ON VEGETATION.

ON witnessing the destructive results of excessive oxygenation which presented themselves in the seeds killed by the positive electrode of the battery, and as also produced in the stems and branches of trees and plants by the contact of rusting iron, it naturally created a desire to learn what would arise from the opposite arrangement of placing the iron in contact with the roots instead of the branches, and thus reversing the order of the metals in the plant case; and no sooner did the thought arise than the necessary steps were at once taken to put it into practice. A small cylinder of sheet iron resting in a zinc pan was first half filled with drainage (this precaution was taken to prevent any possible access of zinc solution reaching the roots, as all zinc salts appear to be injurious), and the remainder with a compost of peat, loam, cocoa fibre, and sand, in which some half-dead Ferns just unpacked from Madeira were planted, but with very little hope of their recovering. They very soon, however, showed signs of life and were not long in being resuscitated, after which they began to grow vigorously, and continued to do so with considerable luxuriance. Reflecting on this arrangement and its results it was directly perceived that the zinc was altogether superfluous, it being of the same electrical condition as the earth, and therefore of no advantage whatever, and it was found to be equally effective without it.

This same principle was then carried out on a more extended scale. Having a small conservatory situate in a confined part of a densely populated city, closely surrounded with high buildings together with a whole forest of smoking chimneys, and consequently within the influence of an atmosphere of the worst possible character, and one almost poisonous to plants, possessing in the highest degree that "want of strength" or the "air not strong enough" which the gardeners say prevents their being able to grow Roses and other plants in the vicinity of large towns, this was deemed a very favourable subject for experiment. The structure is facing the south, but gets the sun only in the middle of the day, and enjoying very little of it for several months in the winter. On the east, south, and west it is shelved with half-inch slate slabs supported by iron brackets neatly japanned (which latter now turns out to have been a mistake). The floor is of Minton's tiles, and there are sufficient hot-water pipes to keep out the frost. Now, with these appliances it was hoped and expected that plants would bear their city quarters with some degree of satisfaction to their owner; but it was not so by any means. Plants "bought in" soon began to deteriorate in their appearance. Flowers became smaller and fewer, the soil turned musty, and mildew became a constant accompaniment. After various trials the following plan was adopted as being the most slightly and successful. A perforated trellis of cast iron, in sections a yard long, 8 inches wide, and half an inch thick (costing 3*d.* per foot run), was fitted to cover the shelves and to serve as the immediate supports for the plants. Standing upon this the plants had their roots directly within the influence of the chemical action pertaining to the oxidation of the metal, and were consequently benefited thereby. The plants very quickly lost their unhealthy appearance and commenced growing freely, and, what is equally important, for the last few years not a trace of mildew has ever made its appearance. A plant of *Polypodium vulgare* var. *Ewingi* standing in an iron wire basket, but insulated from the floor by three wooden legs, and growing in an 8-inch pot, is now 2½ feet through, with fronds above 20 inches long and 6 to 7 inches wide. Many other plants now do equally well, and produce as healthy and almost as luxuriant foliage as can be obtained under ordinary circumstances in better localities. On the entire western side or end of the house a rockwork, formed of furnace clinkers, has been built up from the floor to between 8 and 9 feet high (enclosing the slate shelf), having all the overhanging parts fastened to the

back wall with unprotected iron stays, and this again has been a complete success. The difficulty is rather to keep the occupants within bounds, and from becoming too luxuriant for the size of the house. Even that most fastidious of English Ferns, the *Asplenium marinum*, has made itself quite at home, producing tufts of fronds from a foot to 16 or 17 inches long, whilst seedlings come up profusely in every direction.

Although it may be possible for some minute portion of the iron by becoming dissolved to find its way to the roots, it is not to this we have to attribute the effects described. The stimulus afforded to the plant is derived from the combining of the iron with oxygen. It is a well-known law that metals in their reguline or bright state are insoluble in acids, but not so when they have combined with oxygen; hence it is not the metal direct that is dissolved, but its oxide or rust. In the chemical battery—composed of zinc, copper, or platinised silver, and sulphuric acid—the zinc is first oxydised and then dissolved, and it is this act of combining and being dissolved that furnishes the electricity, the quantity of which is always in a direct ratio with the quantity of zinc consumed. In the same manner electricity is evolved during the process of oxydation of the iron, which electricity then stimulates the roots within its reach to greater activity, forcing them to take in food to a proportionate degree. Now, as all chemical decompositions are attended by the development of electricity, it will be obvious that as all animal or vegetable matter in a decaying state is undergoing a chemical change, consequently mulching the ground with any decaying material in a moist state will necessarily be a far more complex operation than is commonly supposed. In the usual dung hotbed the decomposition is accompanied by heat, as everyone knows, and in Nature it is scarcely possible to have any one force developed without some other force accompanying it.

By the modern doctrine of "the correlation of the physical forces," heat, light, electricity, magnetism, motion, and chemical action are all considered to be equally related to each other—that any of them may be converted into any other, or into all the others reciprocally, each one disappearing as some other or others make their appearance. Thus it may be said, in other words, that there is but one force, and that this force appears under different guises according to the mode of its development. Hence, when speaking of electricity in relation to organic life, it is wholly impossible to dissociate it from its congeners, heat, light, &c. From light as an agent, heat, electricity, and chemical action are prominent effects. From heat we derive motion and light, and chemical action as well as electricity as ordinary everyday commercial results. Were any persons to be asked what they understood by the term "electricity," in all probability the answer would be "thunder and lightning!" Now, this reply is, to a certain extent, both right and wrong. Electricity is the origin, but that which is seen and heard is only the result of the electric discharge. Rub a piece of amber or good red sealing wax briskly for a few seconds on the coat sleeve, and then present it to a few small scraps of thin paper, and these will immediately dart up and adhere to it. It is this attracting force that represents the electricity, just as the attraction of the magnet represents magnetism, whilst the motion of the paper is only the result. But this attracting force has one special feature which distinguishes it from the ordinary attraction of gravitation. After the pieces of paper shall have been in contact for a few seconds they will dart away again, and then cannot be re-attracted by the sealing wax or amber a second time; yet if a piece of glass, which gives out the opposite electricity, be rubbed and presented they will adhere to this as they did originally to the wax or amber, the law being that opposite states attract, but similar states repel each other. In former times it was supposed there were thus two electricities which attracted each other; but the present belief is that there is only one which has undergone polarisation, the same as exhibited in the magnet. Hence it is the attraction of these two oppositely polar states which, recombining suddenly, produce the report and flash of light heard and seen in the tempest. The darting away of the pieces of paper indicates a very important fact, by showing that certain bodies are capable of receiving and retaining an electric charge which regulates their future proceedings. Thus two clouds may become highly charged and expend their explosion harmlessly between themselves; but when the earth and the clouds are opposed, and the discharge occurs from one to the other, there is then danger to all terrestrial occupants.

The earth and the atmosphere are always, when in a normal condition, oppositely electric, and it is between these two conditions, not when they are in this highly explosive humour, but when they are apparently passive and unconcerned, that their influence upon vegetation is most effective. From the battery we obtain electricity, but from the electricity of the earth and air

we obtain chemical action, and it is from this source that vegetation derives its primary impulse; but the manner in which this is effected must be left for the present. It will be necessary first to consider the behaviour of oxygen and carbon, which latter is the main food of the plant, towards each other, as well as their conduct generally under ordinary electric treatment. Burn a small piece of any animal or vegetable substance, and it will be converted into a dark carbonaceous mass. Now this carbon or charcoal is the fundamental material which constitutes the framework of every organic being; and just as the bricks of a building, which, when pulled down, may be used over and over again and built up in any other form or description, so is the carbon indestructible, allowing it to be re-dissolved and wrought up again and again into any other being. Take a piece of charcoal and burn it a second time and all its blackness will disappear, leaving only a small amount of white or gray ash—the earthy part of the original substance. The carbon will have been dissolved in the oxygen of the atmosphere and passed off into the latter as an inodorous and invisible gas, and it is commonly believed that this source furnishes the entire food of all vegetable life. There is reason, however, to consider this to be not strictly the case, as will be seen hereafter.

If the two terminal conductors from a small battery of several pairs of elements be tipped with pieces of platinum wire, and these latter be then dipped into a portion of very dilute sulphuric acid and kept a short distance apart, bubbles of gas will be seen to be given off by each wire. These are the component gases oxygen and nitrogen, which, when combined, constituted the water that has been electrically decomposed. This is termed "electrolysis—a loosening by electricity, and forms the first step in all electro-chemical action. The elements of any compound are first loosened from their original attractions, and then re-assorted according to whatever other elements may be within their reach, and occupying the requisite place in the scale of attractions. Instead of the platinum-tipped electrodes let the copper wires be placed in an acid solution of sulphate of copper (the blue vitriol of commerce), and one—the positive wire, will be seen to dissolve, and at the same time a new fresh coating of bright copper will form upon the other wire—the negative. Now, in nature there is always this dissolving and reproduction going on simultaneously in the growth and renewal of organic forms, and it is this process which has to be encouraged by the application of all extraneous assistance.

Carbon being insoluble in water and not adaptable as food in its solid state, the provision made is, that it can be dissolved by oxygen gas, and in this form is soluble in water. It now enters the plant in this liquid state, combined with other ingredients, and is transferred to all parts, even the minutest, as nutrient sap. Then, in the leaves exposed to the light or sunshine, it is again rendered insoluble by the oxygen being driven off. It used to be a very favourite experiment to enclose a sprig of Rosemary within an inverted jar of water placed in the sunshine, and then to prove that the gas exhaled was pure oxygen. It thus appears that the oxygen derived from the atmosphere serves principally the office of "carrier," or as a vehicle for the transport of carbon into and out of the system—into plants and out of animals. But as both oxygen and hydrogen enter largely into the composition of plants there is every reason to infer that this is wholly derived from the water. The oxygen being attracted by the positive and repelled by the negative, it is thus driven into combination at both ends. By the negative it is recombined with hydrogen, producing damp or moisture (which will be again referred to), or the hydrogen may be combined with carbon, producing the oils and resins, &c.; whilst at the positive the oxygen will be united with carbon, forming carbonic acid. The nitrogen of the atmosphere may be united by either, by one into nitric acid, and by the other into ammonia or any other nitrogenous compounds.—W. K. BRIDGMAN, *Norwich*.

[The Fern fronds accompanying this communication were extremely fine.—EDS.]

PRIMULAS DAMPING OFF.

It will soon be time for our good friends the Chinese Primulas to go off from that dreadful malady termed by different gardeners "canker," "rotting at the neck," or "damping of the collar." To those who may not fully understand the nature of the disease, I may say that it is simply the decay of the tender skin of the stem of the plant just at and above the ground level, and that it is only in the winter it is seen. For my own part I would not know that there was such an affection decimating these beautiful winter flowers, were it not that the annual recurrence of remedies and modes of prevention given in the gardening journals keep the

matter before my mind. The reason why so many fail in keeping these and many other plants in a state of health during the winter months is because they forget, or have never realised, the fact that the plants must be kept growing freely. Our Primulas are grown in a temperature of 50° to 55° throughout the winter. They are freely watered with liquid manure when they require it, and instead of getting unhealthy they require standing wider apart twice during the season. Treated thus we have had plants in February and March, grown in 5-inch pots, measuring 18 inches across. I certainly do not recommend a lower minimum temperature than 45° for these plants during the winter months.—B. T.

HOLIDAY NOTES.

YOUR able correspondent, Mr. G. Abbey, at page 43 publishes a truth that employers would do well to consider—viz., that they advance their own interests when they give their gardeners an opportunity of visiting places of note. Such a holiday freely given is a gift doubly good, for it benefits both they who give and they who receive. However, as I do not intend to draw out these notes to any length I will briefly state what I saw at

GARSTON VINEYARD, LIVERPOOL.

This noted place continues to rank foremost amongst the Vine and Grape-producing nurseries of the United Kingdom. That Mr. Cowan is a master at the cultivation of the Vine in pots is amply demonstrated by the thousands of strong, clean, and healthy Vines 10 to 12 feet high now to be seen in the large house. These, at the time of my visit (August 3rd) were ripening in the most satisfactory manner, canes the thickness of a man's forefinger and of the desirable firmness of character, and all raised from eyes this season! for if I remember aright Mr. Cowan stated that he had not a "cut-back" on the place; indeed the pot Vines alone are well worth a journey of a hundred miles to see. A house 150 feet by 32 feet, span-roofed, formerly occupied by fruiting Vines, chiefly Muscat of Alexandria, is now filled with Vines in pots. The old Muscat house is filled with as good a lot of Grapes as it contained twelve and fourteen years ago, which is saying a great deal; in fact the Vines are as vigorous as ever they were, the causes not being far to seek—viz., judicious cropping, generous feeding, and constant introduction of young wood as the old stems deteriorate. The extension system is being carried out there with very favourable results as regards its application to the Vine. In a small house, which was formerly the early vinery (and which, by the way, is considerably elevated, the pathway and surface of the border being nearly 6 feet above the ground level), is a fine plant of Gros Guillaume, which has produced and finished a crop of 175 bunches averaging 2½ lbs. each, and now covers, including this season's extended growth, a superficial area of 1200 feet. This case is worth the consideration of those who find Gros Guillaume to be a shy bearer when grown on the short-spur and single-rod system. That grand midseason Grape, Madresfield Court, is another good example of extension at Garston, where it nearly fills what were formerly two Peach houses; it has produced this year 270 bunches of good size and quality. I think this Vine was planted ten years ago.

I noticed in one of the plant stoves two good varieties of Croton. *C. Duke of Buccleuch* and *C. interruptum aureum*, each very distinct in character, and will be very valuable for table decoration or exhibition purposes. There is a large number of clean healthy plants suitable for market in the other plant houses and pits, and Mr. Cowan thinks of destroying the Vines in the famous north vinery and filling it with Ferns, a class of plants he requires by the thousand every week in the year.

The notorious lime kiln is still engaged in heating nearly all the glass structures on the place. In spite of all that has been written about it, and judging by what I heard and saw, will continue to do so, as the lime sold nearly clears the cost of all the coal consumed in the Vineyard. In conclusion I may say the fame of Garston Vineyard is in safe keeping whilst it is in the hands of Mr. Cowan.—J. U. S.

THE PALM GARDENS OF ELCHE.—These gardens are far-famed. Although the Dates are inferior to those of Africa and the East, they have a ready sale throughout Spain, where the other products of the tree are also largely utilised. The small leaves, which grow on the top of the tree, are tied for several months, till they blanch and lose all colour; they are then cut and sold, to be dressed with ribbons and blessed, carried in procession upon Palm Sunday, or hung for the rest of the year on the balcony of a house. Other leaves are used in the manufacture of spurious cigarettes; while the timber of the trunk, a firm, hard wood, is in request among the carpenters and handicraftsmen. But the Date fruit is the

chief product, and the annual harvests of them are worth many thousands of pounds. It is amusing to watch the activity and hardihood of the gardeners, who still ascend the tree to pluck the Dates as they did a thousand years ago. A loose rope passed round their waists is tightened by the pressure of their feet against the bark of the tree; their hands are thus left free to help them in their upward climb.—(*Cassell's "Picturesque Europe."*)



IN reference to the illustration of *RUBUS ROSÆFOLIUS* VAR. *CORONARIUS* that appeared in our last issue, we are informed through a paragraph which appeared in last week's *Gardeners' Chronicle*, that the original block was engraved by Mr. W. G. Smith for that paper, in which it first appeared. We obtained the block from the source *which we acknowledged*, and it was inserted precisely in the condition in which we received it. At the time of using it we had forgotten that it had long since appeared in the *Gardeners' Chronicle*, and it is too much to expect of any one that he should remember what illustrations have appeared in that paper, and we doubt if anybody would care to tax his memory to that extent. Yet, if we have done wrong, most readily do we render our acknowledgments to our contemporary. We never mutilate blocks that we, like the *Gardeners' Chronicle*, occasionally borrow, and we invariably acknowledge the courtesy of those who favour us with the use of them; if we fail to do so it is through an oversight. We re-echo every word our contemporary has used in reproaching those practices of which we are too often made the victims. There are other forms of appropriation, or misappropriation rather, of which we have to complain besides the purloining of matter and of illustrations. One of the most flagrant and unfair of these from which we have suffered is at the hands of the *Gardeners' Chronicle* itself. It is no less than the adoption of our title. A few years ago the *Gardeners' Chronicle* thought it advantageous to remodel its title and discarded its old secondary distinction. It called itself "The Gardeners' Chronicle, a weekly illustrated Journal of Horticulture." Of course, a gardeners' chronicle must be a journal of horticulture—even Dundreary could understand that. The effect of this was to cause a confusion between our contemporary and this Journal of which we have repeated instances. We do not say that this subordinate title was adopted for the purpose of sharing the wide popularity which the *Journal of Horticulture* enjoys, as it might have been done with the same inadvertence as that by which we used the *Rubus* illustration; we hope it was so, nevertheless to have avoided ambiguity it would have been better if that subordinate title had not been adopted, but allowed to continue as the rightful property of the *Journal of Horticulture*. "A feeling of what is due to the honour of journalism, as well as to ourselves, has prompted these remarks."

— THE beautiful *CATTLEYA EXONIENSIS* is now flowering in Messrs. Veitch's Nurseries at Chelsea, a small plant having two spikes bearing six gorgeous blooms, with two other spikes showing. This is one of the richest of the genus, and as it is now becoming tolerably plentiful it will soon find its way into many collections in which it is not yet represented, and where it certainly should be to render them complete. *C. Devoniensis* is also flowering, and several small healthy plants of *Lælia præstans* are very attractive.

— A WRITER in the "Science Gossip" for October gives an interesting description of *ANACHARIS ALSINASTRUM*, the Water

Thyme or Canadian Water Weed, introduced to England about forty years ago, since which time it has rapidly spread over the country; and as only pistillate flowers have been observed, this surprising increase was supposed to have been effected solely by division of original plants. The writer referred to states that "having examined the plant carefully in various places during the last two seasons, in the hope of finding either male or perfect flowers, I have at length been rewarded by finding the former growing sparingly in a pond on the Braid Hills, near Edinburgh. This is probably the first record of their occurrence in Britain." Illustrations and dissections of the flowers and plant accompany the remarks.

— WE have had several inquiries concerning *CLEMATIS TUBULOSA*, a pretty species that is by no means so generally known as it deserves to be. A fine specimen is now flowering on one of the old walls at Kew, and the profusion of its bluish lilac-coloured flowers in contrast with the dark green foliage is most agreeable. The species is allied to and closely resembles *Clematis Davidiana*, and they are both natives of China.

— THE CRYPTOGAMIC SOCIETY OF SCOTLAND announce that "a grand Exhibition of FERNS, MOSSES, FUNGI, &c., will be held in the Coal Exchange Hall, 11, West Regent Street, Glasgow, on Thursday September 30th, and the following day. A very extensive collection of plants will be exhibited, comprising specimens of all the British Ferns, many exotic Ferns, including Tree Ferns, Club Mosses, British and foreign Mosses, Seaweeds, Lichens, Liverworts, &c.; fossil Ferns, Horsetails, and many thousands of fresh Fungi. At intervals during the two days popular addresses in illustration of the various sections will be delivered by Col. R. E. S. Harington-Stuart of Torrance, Dr. Stirton, Dr. Buchanan White, and other gentlemen." This is the first Exhibition of the kind ever held in Glasgow, and it ought to be highly interesting and worthy of extensive patronage. Messrs. W. J. Milligan, 180, West Regent Street, and R. Turner, 122, Hospital Street, are the joint Secretaries.

— OUR correspondent "NORTH YORK" writes as follows on *TROPÆOLUM SPECIOSUM*:—"I see from reports in the Journal that this beautiful plant is increasing in favour. When its cultivation is better understood it must become a general favourite. I have to report very favourably of my plant, which is now thoroughly established. It has been in splendid bloom all the summer until the present time. I also am glad to say seed has formed, which I hope will ripen."

— THE death is announced of Mr. CHARLES JOHNSON, who expired on the 21st inst. at his residence in Camberwell at the advanced age of eighty-nine. The deceased gentleman for more than forty-four years held the post of Professor of Botany at Guy's Hospital. He was Editor of Sowerby's "English Botany," author of "Grasses of Great Britain," "British Poisonous Plants," "Ferns of Great Britain," and other valuable contributions to natural history. In early life he took up the study of natural science, being one of the first members of the City Philosophical Society, of which Faraday and other eminent scientists were fellow members. In teaching large classes of natural history he was perhaps the first to introduce that system of practical demonstration with such marked success, in place of the dry formal lectures previously in vogue. He was a high authority on agriculture and all subjects connected with economic botany.

— WE have received information of the following GARDENING APPOINTMENTS—Mr. J. Beddar, late at Beechwood, Tunbridge Wells, has succeeded Mr. Elworthy as gardener to Lord Leigh, Staveley Abbey, Kenilworth. Mr. C. Davies, late of Woodcote, Newport Salop, has succeeded Mr. Sandford as gardener to C. N. P. Phipps, Esq., Chalcote, Westbury, Wilts.

— "R. S." WRITES—"I have in my garden a number of plants of *OXALIS BOWIEI*, and they still continue producing their bright rosy crimson flowers in profusion. So charming a plant deserves to be more frequently seen in gardens than it is at present, for not only is it attractive but useful for cutting purposes, though the flowers do not last quite so long as might be desirable."

— WE cite the following relative to the FRUIT CROPS OF CANADA AND THE UNITED STATES from a daily contemporary :—Peaches grow in such profusion that they are regularly given to the pigs. So with Apples. In some of the States in the month of September the leaves of the Apple trees can hardly be seen for the glorious red-cheeked fruit. The farmers in the fruit-growing regions of Ontario, Canada, have not time at the present moment to look after an abundant Apple crop. As a consequence hundreds of tons of Apples become either food for hogs or manure for the ground. "Just imagine," writes a correspondent in the land of plenty, "millions of bushels of magnificent Apples rotting on the ground for want of some enterprising buyer, who might make a fortune by hand-picking them and shipping them to England." In view of these facts, it is tantalising to remember that if we in this country want any decent Apples to eat we must pay from 3*d.* to 6*d.* per pound for them; and for Peaches, when they are to be had at all, certainly not less than 2*d.* each. It is matter for wonder that the "enterprising buyer" does not come forward. He would benefit both himself and the British public in no small degree.

— THE second part of Messrs. Cassell's re-issue of "PAXTON'S FLOWER GARDEN" contains coloured plates of *Dendrobium superbiens*, which does not do justice to that beautiful Orchid, and *Rhododendron cinnamomeum* var. *Cunninghami*, fairly executed. The accompanying letterpress containing descriptions and cultural directions is clear and exact.

— THE BRISTOL CHRYSANTHEMUM SOCIETY will hold their annual Exhibition on Wednesday and Thursday, November the 17th and 18th. Prizes will be offered for specimen plants and cut flowers, both of large-flowered and Pompon varieties.

— MR. CRUMP, The Gardens, Blenheim, Woodstock, informs us that he has disposed of the entire stock of the new Melon "BLENHEIM ORANGE,"—which was awarded a first-class certificate, as well as the first prize of the Royal Horticultural Society—to Messrs. James Carter & Co., High Holborn, London.

— MR. W. ROBERTS informs us that many people are making a considerable amount of money of MUSHROOMS IN CORNWALL. Many tons have from time to time during these past few months been sent from the Penzance station, besides great quantities from other stations in Cornwall. Blackberries are also sent away in large quantities, both these and Mushrooms realising good prices.

— REFERRING to the heavy cropping qualities of the MAGNUM BONUM POTATO, Mr. A. Fowler, Cams Hall Gardens, Fareham, Hants, states that he obtained a supply of seed tubers from Messrs. Sutton & Sons, the yield from which equalled 36 bushels from 1 bushel of seed. Sufficient has been said at present to indicate the productiveness of the Magnum Bonum.

— WE extract the following from the *Prairie Farmer* relative to EARLY PEACHES IN AMERICA :—"Amsden's June and Alexander began to ripen about the 20th June in Missouri, and the Beatrice and Louise were but a few days behind them. Rivers' Early came a little later, while Kelly's Early was still later. In the Peach region of Delaware and Maryland we notice that the Amsden and Alexander fully maintained their past record. They were larger than either the Beatrice or Louise, and a week earlier in ripening. The Early Rivers ripened just before Early Hales. These five are

the most popular sorts in the East. A number of Peach-growers and horticulturists hold that Amsden and Alexander are identical. The Wilder ripens after Alexander, and is of the same colour. The Gov. Garland—a large firm clingstone Peach—is claimed to be earlier than Alexander. If any of our readers have fruited it this season we should be glad to have a report of its behaviour."

— THE *Irish Farmers' Gazette* published the following under the heading of A POTATO MONSTROSITY.—"Mr. Alfred H. Sheridan has sent us a specimen of a Potato presenting the appearance of a dried and shrivelled kidney-shaped *sac*, with the upper surface rent and nearly altogether displaced, and revealing in the interior quite a colony of young Potatoes, some larger and some smaller than marbles, the whole presenting a curious and singular aspect. This internally proliferous Potato, we may remark here, is not of the current, but a previous year's growth. The explanation of the phenomenon is this—Immediately beneath the skin or rind of a Potato is a system of vascular tissue, from which proceed the vessels that feed the external buds or eyes, which, under normal circumstances, are directed outwards. In the present and similar instances, either by reason of the eye growths being persistently removed or from other causes—their development externally prevented—Nature would not be frustrated, and modified buds, resulting in a progeny of small tubers, take the place of the absorbed tissue. We subjoin the note which Mr. Sheridan sent along with the phenomenal tuber :—'This Potato was found in a bag of old Potatoes which had been lying in the outhouse of a small farmer named James Byrne of Rossminna, Westport, Co. Mayo. When first discovered the present appearance was only developing. The tuber was then placed on a dresser for four or five weeks, and continued to grow to its present state.'"

— MR. H. CANNELL, Swanley, Kent, has sent us some very fine flowers of the handsome PYRETHRUM ULIGINOSUM, which is at this time of year so attractive in borders of hardy plants. The ray florets of the capitula are long and pure white, and the whole flower head very neatly formed. The plant is variable in height, sometimes reaching 5 or 6 feet, and at others not exceeding 4 feet, but the freedom with which the flower heads are produced render it very useful for cutting from August until October.

— OUR correspondent, "W. J. M., Clonmel," writes as follows respecting THE POTATO CROP IN IRELAND—"As already stated, I have recently been through much of the three southern provinces, and within the last few days had communications from those likely to be well informed in the four, and all agree that the Potato crop is good. Even varieties that failed other years, such as Scotch Down—very largely grown in Ireland—Dalmahoy's and Early Oxfords, and perhaps I may add Red Rocks, are all a fair crop; while Flounders, now nearly all consumed, though having a large fraction black, were very large, as I noticed at the time in your columns, as much as 2 lbs. a single specimen. I am sorry to say Early Rose, Snowflake, and Fortyfold were heavily blighted two months since with me, and have kept very badly since. Ashleaf Kidneys have kept better. Those who have Magnum Bonum here speak highly of it. Mr. Luckhurst and your other correspondents who have doubted Scotch Champions will, I am sure, be glad to hear that in Ireland the general description from all sources to me is 'they fill the ground and are excellent food.'"

LIFTING AND POTTING WINTER-FLOWERING PLANTS.

It may seem a very small matter to lift a few plants out of the open ground, plant them in pots, and arrange them in their winter quarters. Still, it is just one of those operations where if success may be very easy, failure either comparative or total is at least

equally likely to follow, and failure with plants intended for winter or spring use is no light matter. The plants we shall be lifting at the time these notes appear will be mainly Cyclamens, Eupatoriums, Bouvardias, Begonias for winter flowering, Callas, Chrysanthemums, berried Solanums, Souvenir de la Malmaison Carnations, and a few others. These will mostly have had their roots half loosened from the soil ten days or a fortnight previously, in order that the check at the time of removal may be as slight as possible.

There are two ways of treating the plants after being potted—the one to place them under glass without delay, and to keep them close for a time, and also moist by frequent syringings; the other is to let the plants after potting remain in a suitable position in the open air for ten days or so until the roots have taken hold of the fresh soil, and until the approach of autumn frost. I dislike the first plan, for the simple reason that it causes much unnecessary attention, whilst the results are equally good—not a leaf need be lost in either case. But stand the best-prepared plants immediately after they have been potted from the open ground in any dry airy structures, and no wonder if there be a turning yellow of foliage and general debility in all the stock. A month later when the midday sun, which is often hot well into October, has lost most of its power, plants from flower beds for stock purposes can be immediately placed in any kind of structure without any grievous harm resulting, provided enough heat is allowed to give the roots a start.

Two matters of some importance just now is to give a greater amount of drainage to plants that are being potted, and to make the compost sandier than is the case for those having the summer before them.—R. P. B.

JUDGES AND JUDGING.

"A VETERAN'S" remarks on page 275 are well timed. The judging at exhibitions should, as far as possible, be above suspicion or complaint in any way, and it is exceedingly desirable that the judges should be changed occasionally at least; but there are not a few notable horticultural shows where the same men have been employed for nigh upon a score of years. The fact need only be mentioned, and I can tell you what the usual practice is of some of those old stagers who "seek for work," and kill two dogs with one stone. They invite themselves, if the show be in the provinces, to some gentleman's gardener's house in the neighbourhood a day or two before the show to take "a few notes" for some paper, and are lodged and fed, and perhaps driven over to the show when the time arrives, the host usually being an exhibitor himself, and his produce perhaps judged by his guest. After the show our judge invites himself for a day or two to some other places near, where exhibits come from also, to take a few more "notes," and so on from year to year. I could give you the names of both judges and places where this has been done in the most regular way for years, but "he who runs may read."—A.

PORTRAITS OF NEW AND NOTABLE PLANTS.

CRINUM KIRKII.—"This is a very fine new Crinum of the ornatum group, of which the bulb was sent home about two years ago by Dr. Kirke from Zanzibar. It flowered for the first time at Kew in the autumn of 1879. Its nearest ally is C. Forbesianum, from Delagoa Bay, which was lost for a long time, but which we have again lately received and flowered. The present plant has flowers as large and as brightly coloured as the finest forms of C. ornatum, but may be recognised at a glance by its short very stout peduncle, and very large acuminate leaves, with a distinctly ciliated edge."—(*Bot. Mag.*, t. 6512.)

CITRUS TRIFOLIATA.—"This singular and free-flowering shrub is much less known than it deserves to be, it being, in fact, almost unknown in English gardens, though perfectly hardy, free-flowering, and sweet-scented. It has stood unprotected in the open border of the arboretum of Kew for several years, and hitherto has been quite uninjured, even the tender young shoots resisting the early frosts and long-protracted cold of the last two inclement seasons; a fact the more singular when it is considered that the whole plant is evergreen in respect of leaves, branches, and spines, though the leaves are deciduous. C. trifoliata is a native of Japan, where it is much cultivated both as a garden plant and for fences. Its fruit, which resembles a small Orange, is described as very bitter, and having laxative properties. As an early-flowering and sweet-scented hardy shrub this Citrus is likely to prove a favourite, and should it be eventually unable to withstand a winter of unusual severity in the open border, it may still be safe on a wall with or without protection. The flowers appeared in the middle of May of this very backward year, but no fruit has been formed;

the leaves were not fully developed till the end of June. It need hardly be stated that the five-petalled variety is much more attractive than the four-petalled."—(*Ibid.*, t. 6513.)

GENTIANA ORNATA.—"This beautiful little Gentian is a native of the rich alpine meadows of the Himalaya, where it represents the G. frigida of the Hungarian Alps, and from which it differs in the cartilaginous margins of the leaves, and the absence of the filamentous remains of old stems on the summit of the rootstock, as also in the colour of the corolla, which is of an intense blue, not white, like the European species. The G. ornata is confined to the central and eastern Himalaya; it was discovered by Wallich's collectors in Central Nepal, and I have gathered it abundantly in Sikkim at elevations of 13,000 to 16,000 feet."—(*Ibid.*, t. 6514.)

HELICHRYSUM FRIGIDUM.—"A very remarkable and scarce little alpine plant, hitherto found nowhere but in the mountains of Corsica, at elevations reaching to 6000 feet. It was long supposed to be also a native of Syria, it being described and figured by the Syrian traveller Labillardiere under the name of Xeranthemum frigidum, as being found by him on Mount Lebanon as well as in Corsica, and there is in the Kew herbarium a specimen of it from Labillardiere's own herbarium, communicated by the late Mr. Webb, who obtained the herbarium by purchase, and left it by will to Florence, but it is not stated whether it is from Corsica or Lebanon; as, however, it is identical with specimens from the first named country, it may be assumed to be a copatriot. Boissier, in his 'Flora Orientalis' (vol. iii., p. 239), states under H. Billardieri (a Lebanon species and very different from H. frigidum) that H. frigidum is erroneously ascribed to the Lebanon, and this is the general and, no doubt, correct opinion."—(*Ibid.*, t. 6515.)

LACÆNA SPECTABILIS.—Native of Mexico. Flowers very pale pink. "A very little-known genus, of which only two species have been discovered, the present and L. bicolor, on which the genus was founded by Lindley ('Bot. Reg.', 1844, t. 50), and which is a native of Guatemala. The present is very much the handsomer species of the two, and is remarkable for the delicate colouring of the perianth, which in L. bicolor is of a greenish-yellow hue, and not speckled in the lip. The two species differ widely, this having a much longer claw, a horn, concave in front, between the lateral lobes, and a stipitate mid-lobe; whilst that of L. bicolor has a very short claw, a beard between the lateral lobes, and an almost sessile mid-lobe. Lindley, who named the genus, called it by one of the names of Helen (Lacæna), because of its beauty; a compliment which the 'Botanical Register's' representative of L. bicolor does not at all merit; he adds, however, that it may also be derived from *lakis*, a cleft, in allusion to the divisions of the lip. L. spectabilis flowered at Kew in the spring of this year; the Royal Gardens are indebted to Dr. Wendland, of the Royal Gardens of Herrnhäusen, Hanover, for the plant."—(*Ibid.*, t. 6516.)

GLOBE ARTICHOKE FROM SEED.

JUDGING from what I have seen and heard, the last two winters proved unusually destructive among the plantations of Globe Artichokes. This was especially the case last winter, when the growth, the result of a wet dull season, was over-luxuriant, and as a matter of course was very liable to injury from the extra severe frost experienced. Many who succeeded during the previous winter in saving a sufficiency of old stumps to give the required number of suckers for the formation of new plantations, failed completely with them last winter, and that, too, after taking precisely the same precautions in the way of protecting. As a consequence some purchased a fresh stock of plants, and still more, I am informed by a good authority, bought seed and raised their own plants. This in both instances was right enough to a certain extent, but unfortunately neither could be relied on; in the first instance simply because nurserymen were no more able to preserve their stock of plants than were gardeners, and even if they were, but few I imagine would have a quantity sufficient to meet the unusually heavy demand. The way out of the difficulty—and nothing could be easier—was to raise a number of plants from seed, and unless I am much mistaken these same seedlings have proved somewhat surprising to the buyers, as they have doubtless comprised several very startling novelties, of which, unfortunately, fully 90 per cent. were of little value.

Those who have raised their stock from seed, unless much more fortunate than I have been, both during this and previous seasons, possess a great and undesirable variety of Artichokes. Some of which are little better than Cardoons, others with heads of great size but with thin uneatable scales; some with long and sharp spines, and others perfectly spineless; some with flattish heads with recurved scales, and others again, close and perfectly conical—

headed, the colours of some being green, some purple, and others a mixture of the two, in fact no two being exactly alike. All could be obtained from a single packet of seed, in my case presumably of the Green Globe. I have on previous occasions sown seeds of both the purple and green forms, but this season I confined myself to the latter, knowing from experience that I should have more than enough of variety from one packet.

I am not writing this to the prejudice of the nurserymen or seedsmen who may have distributed either seedling plants or seed with the above results, as I firmly believe they are quite unaware of the mixed character of the stock. My motive for again calling

attention to it is simply to elicit the experience of others, as should this be in accordance with mine it may, and I trust will do so, ultimately result in the seedsmen being more particular in their transactions with the continental seed-growers, who, in all probability, grow for seed purposes the purple and green varieties and also Cardoons in close proximity. If I could rely upon seedlings coming true to name I should grow them exclusively, as the heads of those few that are really good are much superior to any I can obtain from the ordinary stock of plants raised from suckers, although given precisely the same necessarily liberal treatment. So convinced am I of the superiority of the produce of the seed-



Fig. 59.—*PELARGONIUM TETRAGONUM*.

lings when true over those of plants obtained by division, that next season I hope to be able to save some seed under glass. This proceeding, however, I cannot help thinking unnecessary, provided proper precautions were taken by the seed-growers, and which ought to be forcibly pointed out to them by our wholesale seedsmen.—W. IGGULDEN.

PELARGONIUM TETRAGONUM.

THIS is one of the most distinct and curious of all the species. With stems of rush-like appearance, the leaves are generally so reduced as to appear absent, but according to the conditions of growth they may or may not develop. They are present on luxuriant or young specimens, and then are as we have shown

them in our illustration. The flowers are of peculiar form, but also showy from their size and delicate pink colour, with dark and conspicuous veining. It was introduced more than a hundred years ago, and forms the subject of a very early plate in the "Botanical Magazine." I have known it many years, but always as a variety, and have, therefore, been delighted to find large plants in the Cambridge Botanic Garden, where the drawing was made. In Haworth's time there were two varieties in cultivation which I have never seen, the one with variegated stems, the other with variegated leaves.—L.

THE COLOUR OF FLOWERS.—At a recent meeting of the Vaudois Society of Natural Sciences, Professor Schnetzler read an interesting paper on the colour of flowers. It has been generally

supposed that the various colours observed in plants were due to so many different matters, each colour being a different chemical combination without relation to the others. Now Professor Schnetzler shows by experiments that when the colour of a flower has been isolated by putting it in spirits of wine, one may, by adding an acid or alkaline substance, obtain all the colours which plants present. Flowers of Pæony, *e.g.*, give, when placed in alcohol, a red-violet liquid. If some salt of sorrel be added the liquid becomes pure red; while soda changes it, according to the quantity, into violet, blue, or green. In this latter case the green liquid appears red by transmitted light, just as does chlorophyll (the green colouring matter of leaves). The sepals of Pæony, which are green with a red border, become wholly red when put in salt of sorrel. These changes of colour, which can be had at will, may quite well be produced in the plant by the same causes, for in all plants there are always acid or alkaline matters. Further, it is certain that the transformation from green into red, observed in the leaves of many plants in autumn, is due to the action of tannin which they contain with chlorophyll. Thus, without wishing to affirm it absolutely, Professor Schnetzler supposes, *à priori*, that there is in plants only one colouring matter—chlorophyll—which, being modified by certain agents, furnishes all the tints which flowers and leaves present. As to white flowers, it has been found that their colouration is due to air contained in the cells of the petals. On placing the latter under the receiver of an air-pump, they are seen to lose their colour and become transparent as the air escapes from them.—(*The Times*.)

THE SEASON AND THE POTATOES.

ALTHOUGH the summer of 1880 has not, perhaps, been without the average number of failures, there are a few remarkable successes which deserve to be recorded for future encouragement, some of which are owing to natural causes, others to dogged perseverance, and others, again, to the two causes combined, as they ever should be.

The enormous crops of vegetables of all kinds, so far as they exceed the general average, are due to a combination of natural causes, which as far as I am concerned are but very imperfectly understood. I can understand that a dry hot spring, which so many people complained of before May was out, was just what was wanted to warm and sweeten the soil after eighteen months of winter; and that the month of June, made up of alternate sunshine and shower, was about the best thing which could possibly follow a hot dry May; but that a wet and comparatively cool July, with the temperature only once up to 80°, should have suited vegetation so well even on the heaviest of soils after a dripping June, is beyond my comprehension. I had no means of measuring the amount of rainfall, but it must have been something enormous. A more than usual quantity would doubtless be absorbed and evaporated by the extra-luxuriant vegetation, for Peas grew 13 feet high, and Cauliflowers turned in a month or six weeks before their customary seasons. Potatoes also and many other vegetables made more than their average growth, and would consequently take up a corresponding amount of moisture; but there still remains a great deal I cannot account for. However, "All's well that ends well," but there is no harm in inquiring into Nature's mysteries, utilise her teachings as much as possible, and then bravely acknowledge how little we know.

I have no doubt that we are indebted to the dry April and May for our comparative immunity from the Potato disease. If, as experiments have gone a good way to show, the resting spores of the *Peronospora* require a certain amount of water to excite them to active vitality, that water was not forthcoming this season at the usual time, and it may be, as our subsequent experience would seem to indicate, that only a very small portion of the spores vegetated successfully. Query, What becomes of the remainder? Have they perished, or are they waiting safely for a more favourable opportunity next year? Certain it is that the disease in the earlier part of the season was very much milder than usual; and it was only, I think, when a successional family of active spores was produced and distributed from the growing Potato tops that the disease increased to any alarming extent; and indeed with the precautions I took I have not had it in a virulent form except upon two small patches, which can be easily accounted for, although in the adjoining village the loss is very considerable.

Some time ago I mentioned that I had all the tops carefully pulled off Myatt's Ashleaf with the exception of a small patch as soon as the first speck of disease was seen in the garden. The patch on which the stems were left was a portion at one corner of a square piece, not selected in any way, but just where the men happened to be finishing, and in all respects exactly like the rest of the piece as far as could be seen. The whole piece was lifted

during last month, with the result that 38 bushels of sound table Potatoes were picked off the portion where the stalks were pulled off with less than half a peck of diseased tubers, while from the portion where the stalks were left on were dug about a bushel of apparently sound tubers and quite as many bad ones as came off all the rest of the piece; besides, there were a great many rotted so badly that only traces of them could be found. The best tubers from the badly infected portion were used at once, it being thought undesirable to allow them to come in contact with those which had almost had a clean bill of health. We are using the Potatoes now from the main piece of ground, and find them good in quality and free from disease.

I learned from the badly infected portion one thing worth mentioning. I was willing to admit before this experiment that by pulling off the haulm we invariably sacrificed size of tuber to some extent, but at digging time I found it was not so in this case, as those which were left sound on the badly infected piece were no larger than those from which the stalks had been removed. This proves to my mind that in this instance, when the disease had a firm hold, which was not many days after the tops were pulled from the other portion, no appreciable growth of tuber took place to compensate for the loss in number.

A select stock of the old Ashleaf was taken up and stored early in July before the disease had affected it, and has kept perfectly sound. A portion of another patch not carefully selected, and which was only planted for early kitchen supply, was left in the ground without removing the tops, and I do not think there are any sound Potatoes left at the roots of these at all. Now it is plain that with early Potatoes we can generally evade the disease in two ways—first, by pulling the haulm before the disease has secured any hold; and secondly by lifting the whole crop while the tops are still green. Either plan will answer, and each has its advocates; but as I never have more hands than I know what to do with, I prefer pulling the tops so as to make the crop safe, which is not a long job, and digging when a favourable opportunity occurs. I never remember tasting the old Ashleaf so good in quality as it was early this year; its season, however, was soon over, and it was not good after midsummer. The crop was very large, and it is still in my estimation the best very early Potato in existence.

The tops of Magnum Bonum are now gone, and we are waiting for favourable weather to lift the tubers, of which there is a large crop. Scotch Champion is still (September 16th) growing vigorously. Although many of the side leaves are gone, the tops are green and the stems unharmed. It is already of good quality when cooked, and will be a great boon to the labouring class about here, who have been induced to try it this season rather largely, and with excellent results. I anticipate that more of it will be planted in this neighbourhood next year than of all other late kinds. It is a very rank grower and a very ugly tuber; but "The proof of the pudding is in the eating," and tried by this standard, as well as by the abundance of crop, its qualities are second to none, and while its constitution remains as strong as it now is it is the poor man's Potato *par excellence*. It wants such careful cooking as it is not likely to have at the hands of many besides poor men's wives and daughters, and therefore is not likely to become popular with those who keep professed cooks of the modern type.

I intended in these notes to embrace a variety of subjects, but the "noble tuber" has taken up all my time and space and the others must wait.—WM. TAYLOR.

REVIEW OF BOOK.

A New and Easy Method of Studying British Wild Flowers by Natural Analysis. By FREDERICK A. MESSER. London: David Bogue.

ORIGINALITY of a marked and advantageous character is comparatively rare in the now numerous works devoted to elementary botany. The majority are but slight variations of one common plan, and their relative merits may be gauged more by the accuracy of the instruction given than by an improvement on other works. The book now under notice is, however, a remarkable exception to the general rule, and with this distinctness it also possesses advantages of considerable value. The following explanation of the author's design appears in the introduction, and will convey a correct idea of the character:—

"This work has grown out of a want, which was much felt by the author, of some method which would simplify the study of our native plants, by placing before the student the characteristic distinctions of their natural orders and genera in a clearer and more striking manner than is possible by means of verbal description alone, and which would at the same time possess in itself the principles and advantages of analytical arrangement.

"In botanical letterpress description the recurrence of numerous technical terms unaided by illustrations is always a difficulty, and frequently a source of discouragement to beginners; the usual method of acquiring a knowledge of these terms being very laborious, and the consequence is that the attempt to master it is often abandoned.

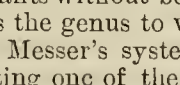
"And even when the description is accompanied by full illustrations of the individual plant there is the danger of undue attention being devoted to the latter to the neglect of the descriptions of the ordinal and generic features. The student is too often satisfied if he can apparently identify his specimens by a general resemblance to the illustrations, even though he may gain little or no knowledge of the reasons for their classification.

"With a view to obviate these objections and to supply the want referred to, the author has adopted a new method of utilising illustrative figures. These figures represent the separate parts or dissections characteristic of the orders and genera, and are disposed in harmony with verbal analytical arrangement; they form, in fact, a series of illustrated analytical tables, the application of this principle to the figures and the combination of verbal and pictorial analysis being the special features of this work.

"That illustrations are a more powerful as well as a more alluring and ready means of imparting knowledge than letterpress alone will

not be doubted. As the eye travels rapidly over the illustrated page it takes in at one view the contents, and there is presented to the mind a comprehensive idea of the subject. So with regard to this work; a few references to an illustrated analytical table will go far to familiarise the mind with the relationship which exists between the various parts of the plants, and the impression produced will soon deepen and become fixed on the memory. This pictorial method resembles more closely than any other the natural process, or that which is intuitively followed in the comparative examination of the parts of the plants themselves."

The first portion of the work is devoted to the delineation of the great divisions of the vegetable kingdom, the Exogens, Endogens, and Acrogens; then follow the illustrated characters of the natural orders, and then the genera arranged under their respective orders. The symbolical figures and dissections are placed on the left hand page, the one facing it containing the verbal description corresponding to the illustrations. As an example of this we give the accompanying engraving, representing the Poppy order, which indicates the method employed better than mere description could do.

4. PAPAVERACEÆ.  2  4  many   			
	 or 	 Red or white	1. PAPAVER.
		 Yellow	2. MECONOPSIS.
		 Violet	3. ROEMERIA.
		 Yellow	4. CHELIDONIUM.
		 Yellow or red	5. GLAUCIUM.

4. POPPY FAMILY. { Corolla regular, polypetalous, inferior. Sepals 2. Petals 4. Stamens many. Capsule 1 or 2-celled; placentas 2 to 20, many-seeded.

Capsule 1-celled; placentas 4 to 20 (forming imperfect cells).

Capsule globular or oblong. Petals red or white

1. Poppy.

Capsule obovate. Petals yellow ..

2. Welsh Poppy.

Capsule 1-celled; placentas 2.

Capsule linear, bristle-pointed. Petals violet.....

3. Roemeria.

Capsule linear, smooth-pointed. Petals yellow

4. Celandine.

Capsule 2-celled; placentas 2.

Capsule very long, curved. Petals yellow or red

5. Horned Poppy

It will be seen from this that the author has confined himself to the natural order and genera, leaving the species to the ordinary handbooks of British botany. The work may therefore chiefly be considered as representing the general variations and prevailing forms of our native plants without being a guide to the determination of species; but as the genus to which a plant belongs can be readily found on Mr. Messer's system, the species could soon be ascertained by consulting one of the "British Floras." It is only necessary to add that the figures are well chosen and clearly drawn, the nomenclature correct, and the general execution of the work very satisfactory. It will undoubtedly prove of great assistance to youthful students of botany, and to such we cordially recommend it.

SAXIFRAGA MUSCOIDES VAR. RUBRA.

THIS pretty little Saxifrage ought to be in every garden. Those who saw it at the Manchester Whitsuntide Exhibition in Mr. Brownhill's of Sale, Manchester, collection of herbaceous and alpine plants will not soon forget it. With me it has been flowering since about Easter in the open garden, and during the dry weather in spring and early summer it were one mass of bloom. In August of 1879 I had two plants which I divided into forty-two plants, which were very small, but in spring of the present year they were about 6 inches across, beautiful green circular patches—yes, green; almost when every other thing in my garden were brown or almost dead. It would make a beautiful edging either separately or planted alternately with Daisies, Aubrietias, or similar dwarf plants. It ought to be divided annually, which adds considerably to its well-doing.—JAMES PERCIVAL.

A QUEENSLAND FLOWER GARDEN.

POETS have sung of the flowers of eastern realms, and artists have pictured the floral wonders and delights of sunny lands, but for ability to produce in perfection a diversity of such beauties of Nature Queensland cannot be surpassed, even if equalled. Climate, soil, situation, and skill in cultivation are all requisite, and are all to be found there. It may be admitted that there are places more

favoured than Australia with native floral charms, though these are acknowledged to be considerable, and the north-eastern colony has more than its relative share of the vegetable fair ones. But without dwelling upon the denizens of the forest, or describing the blossoms which so profusely adorn the valley and hill, let us turn to the story of a flower garden as described in the "Queensland Calendar." The duties of the florist are those laid down each month.

In January, the height of summer, he has to regulate the growth of climbers, examine Dahlias, stake and tie plants, weed beds of Verbenas, Petunias, and Pelargoniums, sow annuals for autumn, propagate Carnations, bud and train Roses, shade and water plants in pots. February has many of the finest plants in perfection; but Chrysanthemums have to be tied up, decaying stems to be removed, annuals trimmed up close to the stem, Stocks to be planted for flowering, bulbs that have done work to be taken up, and seeds to be saved. March is the bulb-planting month. Showy annuals are sown in vacant places, Roses are pruned, and Carnations planted out. In April much transplanting is effected before the cold dry wintry winds come. Bulbs are still planted and Roses propagated. Dahlias are taken up, tubers are dried, Stocks, Pansies, and Wallflowers are sown or planted, and the garden is kept clean. May brings the Camellia in flower; Hyacinths are planted, borders are manured, and the Roses attended to. Some Roses are for standards or dwarfs, the former ornamenting stony or clayey soil. The display of Roses at colonial Rose shows would astonish some European gardeners. June has cold nights in Queensland; so, especially in the south, choice flowers need protection against frosts, however hot the day when once the sun has risen. Softwooded plants for bedding-out are now propagated, and cuttings of Pelargoniums are taken. Dahlia roots are stored, grass plats formed, and hedges planted.

July, the coldest month, may sometimes, but very rarely, have a temperature of 30°. This is the spade and fork time, while flowering shrubs and perennial herbaceous plants are duly placed about. Roses are kept in bloom by pruning. Annuals and biennials are sown, and some bulbs, Gladioli, and Amaryllises, are planted. Fuchsias are increased from cuttings, and Begonias, Gloxinias, &c., have to be repotted. In August overgrown herbaceous plants are

divided. Rhododendrons, Azaleas, Daphnes, Laurustinus, Magnolias, and Arbutus are transplanted. The following are also now recommended to the colonial florist: Poinsettia, Weigela, Latania, Double-blossom Peach, Persian Lilae, Guelder Rose, Tecoma velutina, Escallonia, Poinciana, Erythrina, Lagerstræmia Clerodendron, Bouvardia, Datura, Gardenia, Tabernæmontana, Cestrum, Corehorus, and the Hibiscus.

September is a very gay spring month in Queensland, especially with Azaleas and Verbenas. These are admirably fitted to that climate. Layers of Camellias, Azaleas, and Magnolias are made, while Balsams, Cockseombs, and other annuals are sown, as well as Stocks, Asters, and Lobelias. The blooming Gladioli and Amaryllises require shelter from rough winds. In October the Roses are perfect, Dahlias are staked, Verbenas are planted, annuals are sown, and pot plants protected from insects, always pretty lively in Australia. November wants scythe and hoe. Climbers are tied up, herbaceous plants are cut down, and bulbs are stored; annuals and tender-foliage plants are transplanted in showery weather, and attention given to watering this dry month. In December the weeding is important; edgings are trimmed, climbers tied, and tall plants staked. Roses may be budded, Carnations propagated, and flower seeds gathered.

While Brisbane market is pre-eminent for fruit, it is especially delightful for its show of flowers all the year round. The colonists are proud of their flower gardens, especially of Australian fragrant and flowering shrubs, though patriotically devoted to the culture of those English varieties associated with early years and dear old friends. Queensland of late years has introduced a large variety of Chinese, Indian, Mexican, and Brazilian flowers, for the growth of which its fine climate is so adapted.—J. B.



KITCHEN GARDEN.

Carliflower.—Plants will now shortly be ready for planting in handlights; select the most forward, pricking the others into frames. Good strong loam should be employed, as it promotes sturdy growth, and with proper attention to ventilation the plants will better endure severe weather. The lights should only be employed in case of frost, it not being possible to give too much air when the external temperature is above 35°. Examine the plants commencing heading, and break a few of the larger leaves over the heads to protect them from any sudden frost that may occur after this.

Lettuce.—For the spring and early summer supply Lettuces should be planted in rows 1 foot apart upon a sheltered border, or they may be placed in the spaces between the early Peas, which will shortly be sown, in rows 4 feet apart; rows of a Cabbage variety of Lettuce can be placed 1 foot from each side of the Peas, and a row of Cos in the centre. Where the soil is light it is necessary that it be made moderately firm by treading, and then rake the surface to render it even. Dust the plants with quicklime to destroy slugs. When the main crop of Lettuce has been planted a quantity of the Cos variety should be pricked out in a sheltered situation. Plants from the July sowing should ere this have been placed in frames or in ground where they can readily be covered; if not, the operation must not be longer delayed, planting the alternate rows of Cabbage and Cos 8 inches apart every way. The Cabbage varieties—Paris Market and All the Year Round—will be off before the Cos; Bath Cos, Sugarloaf, and every other plant of the Cabbage may be cut for early use. The lights should not be placed on until frost commences. In connection with this it may be stated that it will be necessary to provide accommodation for the Lettuce and Endive, which are to be lifted from the open ground to give a continuous supply when that outside is either exhausted or destroyed. The preservation of these in cold frames involves much labour and has often unsatisfactory results, so that where large supplies are needed shallow pits with movable lights, and the command of sufficient artificial heat to exclude frost, are essential to provide salads in good condition throughout the winter months.

Cabbage.—The removal of the crops of Onions and Potatoes will

render the ground available for planting Cabbage; it should at once be prepared by digging and manuring if necessary. If large heads are wanted a distance between the plants of 20 to 24 inches every way will be required, but for ordinary purposes 18 inches will be sufficient. The plants must be protected from the ravages of slugs by dustings of quicklime, wood ashes, or soot.

Parsley in pits should be well thinned, but the pits may still be kept open except on frosty nights, when the lights should be put on and removed during the day. Where no other shelter can be had strong spring-sown plants may be carefully lifted and placed in deep boxes or large pots. These placed in an orchard house or vinery from which the Grapes have been cut will furnish a supply in severe weather. Chervil may be treated in a similar manner. In order to keep up a supply of the tender vegetables every aid or protection in the open air should be attended to in due time. The earliest crops of Celery should now be finally earthed-up, well beating down the banks of soil so as to exclude rain as much as possible. In case of sudden frost to take up and place under protection Cauliflowers which are fit for use. Examine Tomatoes on walls, &c., and cut them as they ripen. Should indications of frost appear it will be desirable to cut all Tomatoes that are of size, and lay them in a vinery or similar place to finish. Ply the hoe whenever the weather is favourable between the rows of growing crops, and keep weeds under, as every growth they make is only so much taken from the soil.

FRUIT HOUSES.

Melons.—The weather lately has not been favourable to the late crops, having been cold and wet, during which canker is most troublesome, and cracked fruit most prevalent. The best practice is to keep both the soil and the atmosphere dry, and to employ fresh-slaked lime upon the first appearance of canker. Cease syringing the foliage, and supply water only at the roots to prevent the foliage flagging. Remove all superfluous growths. The late fruits are swelling-off well and must be supported. Maintain a temperature of 70° to 75° by day artificially, and 65° at night, closing the house early in the afternoon at 80° to 85. After this time cease applying water to plants in dung-heated pits or frames; a dry condition at the roots will accelerate the ripening process. Any fruits that have finished swelling on plants that are dying should be cut with a good portion of stem and placed in a warm dry house to ripen.

Cucumbers.—Be liberal in the treatment of the plants for autumn fruiting to obtain a strong growth, as much of the after success depends upon the foundation now laid. Remove all staminate flowers and tendrils, avoiding overcropping, and be careful not to allow the fruits to hang too long upon the plants. Gradually reduce the atmospheric moisture as the days shorten, and employ the syringe only on bright warm afternoons. Earth-up the roots from time to time, pinching out the growing points of the shoots about every week or ten days, reserving as much wood only as will ensure the full admission of light, and in watering have it about the same temperature as the bed. The plants for winter fruiting should be in their places about the middle of October to ensure a good supply at Christmas. See that the heating apparatus is in thorough order, and complete the preparation of the fermenting material. Attend well to the requirements of the young plants, keeping them near to the glass to ensure sturdy growth, and be careful to test the heat of the bed before planting out. A bottom heat of from 85° to 90° will be safe, but the latter temperature should not be exceeded.

Figs.—The Fig trees in pots for early forcing must be attended to, examining the roots, and if needful remove a few inches at the base of the balls, cutting back the roots, and supplying fresh fibrous loam and a sixth of old mortar rubbish or road scrapings; also remove the loose surface soil, filling up with the compost above named, and a fourth of old manure; after that give a good supply of water, and place the trees where they can have plenty of air, but without being exposed to rain or frost. Trees in pots that have the roots extending into the fermenting beds and not started until early in the year will probably continue growing, and the roots should be cut through about a foot from the pots, and the plunging material removed to below the bottom of the pots. A slight syringing occasionally will be sufficient to keep down red spider until the leaves have fallen.

All unripe fruit should be removed, and a dry atmosphere maintained. Fig trees planted out should now be kept drier at the roots, which will tend to mature the growths, and as soon as the second crop is gathered keep the house cool and dry, ventilating fully except during frost. Where root-pruning or lifting is contemplated preparation should be made of the requisite compost—viz., turfy loam, with some old mortar rubbish added, and a sprinkling of half-inch bones, and these operations should be performed as soon as the leaves show indications of falling.

FLOWER GARDEN.

Propagation should now be finished, and the winter quarters prepared for receiving the plants, as sharp frosts may shortly be expected. Plants intended to be lifted should be protected upon the first appearance of frost. It is generally advisable to save most of the tricolor and other variegated Pelargoniums, and some of the flowering varieties, as they come into flower sooner and more freely than young plants, and are valuable for planting in vases, baskets, &c. On account of the comparative slow growth of tricolor, bronze, and other ornamental-leaved varieties it is not desirable to head them back, merely removing any crowded branches and stripping them of their leaves; the remaining shoots being left at full length will afford an early and plentiful supply of cuttings in spring. The green-leaved varieties should be cut back, have the roots trimmed, and be placed in small pots. The plants should have a dry atmosphere and a temperature of about 50°, to keep them slowly growing through the winter.

Calceolarias and Violas.—Cuttings of these may be inserted in frames with the lights facing north, and in an open situation as regards light, placing about 6 inches of rich soil in the frame, and over this about an inch of sharp sand. The cuttings should be from the base of the plants, short-jointed growing shoots of about two nodes and the growing point, inserting them 3 inches apart, and giving a good watering. The lights need not be employed until frost or to throw off heavy rains, when they should be tilted. Violas will strike freely inserted about 2 inches apart in nursery beds in the open, the soil being rendered firm about the cuttings and kept moist.

Plant out Pinks finally where they are to bloom, the ground being previously well prepared by exposure and frequent turning over. Pansies and Violas intended for early flowering should be planted at once. Place choicer varieties of Pansies under glass in cold frames. Finish planting or potting Carnation layers as soon as possible, protecting those in pots from heavy rains. In making up beds of Carnations, Picotees, and Pinks it is advisable to give a good dressing of soot and fresh-slaked lime before planting, to prevent the attacks of wireworm. Anemones for early flowering should now be planted, covering them 2 to 3 inches deep, and surrounding with sharp sand. Anemone fulgens is one of the most beautiful. The herbaceous or mixed border is a very suitable place in which to grow bulbous-rooted plants, as they are not disturbed and can ripen off the growth. Plant English and Spanish Irises about 4 inches deep in well-drained soil, and mulch the surface with leaf soil before frost about 2 inches thick. Gladioli of the ramosus section may also be planted about 6 inches deep as soon as corms can be obtained. Blandus, Cardinalis, Colvilli, and Colvilli albus are valuable for cutting; masses of the early-flowering kinds are really magnificent in June and July. Autumn Crocuses are very beautiful, as *C. nudiflorus*, *C. speciosus*, *C. odoratus longiflorus*, *C. byzantinus*, *C. etruscans*, *C. medius*, *C. serotinus*, and *C. zonatus*, with *Colchicum autumnale* vars., *C. byzantinum* vars., and *C. speciosum rubrum* in masses make an interesting display.

PLANT HOUSES.

Greenhouse.—From now until Chrysanthemums come in is the worst season in the year for flowers, therefore encourage late Fuchsias to continue flowering by regularly removing the seed pods as the flowers drop, and assisting them with weak liquid manure. Any late Gladioli that have not yet flowered may be taken up and potted in 6-inch pots, and will be ready for conservatory decoration, the lifting not interfering with their flowering. Dwarf Scabious may also be lifted and potted, and done carefully they will give a quantity of useful sweet flowers for cutting. *Schizostylis coccinea*

may be lifted and potted, and they will give a quantity of useful flowers over a lengthened period.

Zonal Pelargoniums.—Plants that have been well grown and are strong and well furnished, having had the flowers removed instead of allowing them to form, will be very useful, keeping them at the warmest end of the house, where they will receive plenty of light and will give a number of flowers for some weeks. Plants that have been specially prepared for winter flowering should now be placed in a house or pit where they can be kept rather dry until they are removed into heat to bring them into flower.

Cinerarias.—Plants from seed sown in spring will now be well advanced for flowering, and should be assigned a light position in a house with a temperature of 50°, and they will afford a useful supply of flowers for cutting, especially the self-coloured varieties—blue, crimson, purple, and white. The general stock should be kept cool and moist to ensure sturdy growth, fumigating moderately upon the first appearance of aphides. Plants in small pots should be given a shift, and as the flower head is being produced supply liquid manure.

Primulas should no longer remain in pits and frames, but be transferred to a light airy house and receive weak liquid manure. Abutilons struck in spring and grown on through the summer will be flowering freely, and should have a temperature slightly higher than an ordinary greenhouse to keep them growing and flowering through the winter. *Rochea falcata* does not sometimes open its flower head in an ordinary greenhouse, and may be given an increased temperature, in which it will display its bright heads of bloom unrivalled in colour at this season.

TRADE CATALOGUES RECEIVED.

S. Dixon & Co., 34, Moorgate Street, London, E.C.—*Catalogue of Bulbs.*

Wm. Paul & Son, Waltham Cross, Herts.—*Catalogue of Roses.*



Books (A. B.)—We can only suggest that you advertise the books you desire to sell, stating their condition and the price you want for them.

Gypsum (J. H. P.)—It is a combination of sulphuric acid and lime, and is a constituent of many cultivated plants, especially of the Clovers. It is sold by all dealers of manures.

Hedychium (M. H. W.)—The English name of the Hedychium is Garland Flower, but the species you mention is unknown to us. Are you sure you transcribed the name correctly?

Fruit Trees for Wall (F. J.)—Both Pears and Plums will succeed in the position you name, and the following are good varieties:—*Pears*: Williams' Bon Chrétien, Louise Bonne of Jersey, and Doyenné du Comice. *Plums*: Kirke's Victoria and Green Gage.

Propagating Violas (Idem)—Short sturdy-rooted slips, which will soon be plentiful, will form plants as good for massing purposes as those raised from cuttings; but the latter usually produce the finest individual flowers.

Enlarged Oak Buds (W. S.)—The very large and abnormal buds which you have sent are very singular. They are the result of the puncture of an insect, the cavity of which is perceptible quite in the centre of the mass and close to the growing axis of the bud.

Eucharis (Seventeen-years Subscriber)—The name, as is stated in the Supplement of the "Cottage Gardeners' Dictionary," is "from *eucharis*, agreeable, alluding to the fragrant flowers." Yours is probably an old edition of the Dictionary.

Allamanda Hendersoni (W. B.)—We have no doubt the plant, if it is not started into growth too early, will succeed in the house you name. An intermediate house during the summer is practically equivalent to a stove. We should not start the Allamanda quite so early as the Stephanotis, as the latter plant will succeed in a lower temperature than the former.

Dendrobium nobile (J. B.)—You had better remove the plant into the other house as you propose, assigning it a position near the glass, where it can have all the light possible. Only water it sufficiently to keep the foliage fresh, and the growths will become firm and flowers show in the course of a few weeks, when it can be again placed in the warmer structure.

Grass in Orchard (F. E. D.)—If the second crop is heavy it would not be wise to leave it on the ground; but if light it might not do any harm, nor do we think it would do much good. As you do not want it for hay it might be placed in a yard with pigs or other animals, and converted into manure. If it cannot be so used place it in a heap until it decays, and then have it dug into the land.

Seeds and Plants for Garden (A Reader)—If you will state full particulars as to the size, aspect, and character of your garden, also whether you

require annual or perennial plants, with the particular time, if any, that you require a display, and further whether you have beds on a lawn or gravel that you require to be filled on the massing system of one variety of plant in each bed, or desire the plants to be grown in mixture—if you will state such essential particulars as these we will readily advise you on the subject, but in its present form your question is unanswerable.

Wintering Chrysanthemum frutescens (E. C.).—The plants may be wintered safely in a light position in an ordinary greenhouse. If they are planted out you should take up a few of the best and most sturdy at once, prune them slightly to render them compact, and pot them in good soil. Cuttings may yet be struck, inserting them in sand and placing the pots in close and moderately heated frame or pit. Old plants yield cuttings in abundance in the spring, which strike with great freedom in moist sand in a heated frame or propagating house.

Figs Cracking (Horace).—The cause of the fruit parting at the apex into four divisions is too much water at the roots, and too close and moist an atmosphere. When Figs are ripening, the trees require to be kept comparatively dry at the roots, but not so much as to distress the foliage; a free circulation of dry warm air is also needed. This is not only necessary to prevent cracking, but is essential to quality and flavour. The most useful Fig for growing in heat, or indeed for any purpose, is Brown Turkey, and if you require a white companion for it grow White Marseilles.

Vine Leaves Withering (Berwickshire).—It is not uncommon for the leaves to fall prematurely from young Vines that have made very strong canes, and it is not often that any serious injury results. The best leaves sent appear very healthy, but some of the others show unmistakable signs of scorching. We do not think the Vines are "attacked with a disease." You have perhaps been "pushing them on with fire heat," and possibly sun heat, rather too fast. Admit more air, especially early in the morning.

Disbudding Camellias (Park Hill).—Undoubtedly a great number of the buds must be removed, but we should remove them by degrees, and very carefully. If the plants are vigorous they will support two or three flowers on each shoot, but if fine blooms are coveted one on each shoot will be sufficient; the final thinning, however, should not be done until the approach of spring, as from various causes some buds not infrequently drop during the winter. Remove one-third of the buds now, and the others at weekly intervals until they are reduced to the requisite number for expanding.

Cyclamens Unhealthy (R. P. O.).—As the plants are just coming into bloom, we regret that we do not know of any mode of destroying the maggots at the base of the corms without at the same time despoiling the plants of their beauty. Very old corms are not infrequently affected in the manner you name; but if your plants are young we cannot account for the presence of the maggots, unless they were in the soil when it was used. You had better raise a fresh stock of plants from seed, which may be sown now if you have suitable heated structures for growing the seedlings.

Grapes for Greenhouse (Inquirer).—The term "greenhouse," as applied to Grape culture, is very indefinite, as there are structures of that name in which the requisite temperature can be produced to ripen most varieties of Grapes. We can only say that the following Grapes having a Muscat flavour will ripen in vineries that are not usually kept at a hothouse temperature—Mourte Frontignan, Venn's Black Muscat, and in fine seasons Bowwood Muscat. Troveren Frontignan requires more heat to produce it in good condition.

Planting a Grave (J. M. B.).—We do not think your proposed plan of planting will answer your expectations. Assuming that both the Snowdrops and Crocuses would grow well, the foliage of the former would quite hide the design of the latter. If you desire to have Snowdrops you might plant a broad margin with them round the grave, forming the design in the centre as you propose with Crocuses. If the bulbs are covered 5 inches deep with light soil you will then be able to plant, with ease, bedding plants in summer. After these are cleared off in the autumn a layer 4 or 5 inches in thickness of decayed manure should be spread on the surface. The rains will wash the beneficial portion of this to the bulbs, and in the spring the manure will have changed almost to black soil, and will be exactly suitable for the bedding plants. The bulbs cannot be planted too soon; many failures ensue by deferring the planting of Crocuses until the corms have grown considerably, when decay often ensues.

Early Produce for Market (R. R.).—Fruit, flowers, and vegetables are largely forced for market purposes, and those who are acquainted with the peculiar nature of the work appear to succeed very well. We do not consider it safe to advise a man who has been exclusively employed in gentlemen's gardens to invest his savings in trying to establish a trade of this kind without being practically acquainted with the general conduct of the business as it is practised in the neighbourhood of London. Competition is very keen, and special knowledge is needed to attain success. Most of the growers for the London markets confine themselves to the production of either flowers, fruit, or vegetables, but we believe among others Mr. Elliott of Fulham grows them all more or less extensively.

Paulownia imperialis (Winchester).—The leaves you sent appear to be those of the above-named Japanese tree, which in habit and foliage resembles Catalpa syriacaefolia, but differs structurally, the latter being allied to the Bignonias, while the former is included in the natural order Scrophulariaceae. The tree was originally discovered by Dr. Siebold, and was introduced to this country in 1840. It has been planted somewhat extensively in Paris, where, and in the south-western parts of England, it is very ornamental, owing to the fine foliage and purplish-lilac flowers that mark the species. The flowers are not, however, very frequently produced in unfavourable positions, and in the neighbourhood of London they are rarely matured, the tree often being injured by frost. A moderately light dry soil and a sheltered warm position seem to suit the Paulownia very well.

Melon Leaves Decaying (J. G.).—It is very difficult to account for injury to the plants in the house while those in frames remain healthy. Is the bed chambered and heated wholly with hot-water pipes? If so, there is a probability that the roots when they reach the slates, or whatever the pipes are covered with, are injured by heat or drought, while the bulk of the soil in the bed is in good condition. Is the glass of the house different from that of the frames? If the former is very common and full of lenses the leaves under it would be scorched and blotched. Do you syringe the plants rather late in the afternoon, or damp the house freely then? We gather from your letter that the front ventilators are left open at night and the top ventilators are closed. We should reverse this mode of ventilating, and not allow the temperature to fall below 65° at any time. If there is much moisture in the house and the temperature is low in the morning there will be a condensation of moisture on the foliage, and the sudden evaporation following the opening of the top ventilators after the sun has been shining on the house for some time would result in injury to the

foliage. The injury, we think, arises from one of the causes we have indicated, or possibly a combination of them.

Vine Shoots Injured (Fleetwood).—We sent for the Vine leaves expecting to find them infested with thrips, which when numerous often attack the young growths and destroy the epidermis. But there were only two of those insects on one of the leaves sent, which circumstance does not indicate that thrips are sufficiently numerous to have caused the injury, unless, indeed, they are more plentiful on some other leaves that we did not see. The affected portion has been subjected to careful microscopical examination, and not a trace of fungus can be found. We conclude that the injury is either the result of the puncturing of some insects, or the shoots have been in contact with something poisonous to their tissues. The Vines are evidently unhealthy, the leaves lacking substance, and the wood being very unripe. You do not inform us as to their age, condition, the treatment which they have received, nor the wires to which they are trained, all of which particulars would have been of assistance to us in endeavouring to find the cause of the injury.

Ficus elastica Unhealthy (S. A. P., Clevedon).—The discolouration of the foliage is either the result of the plant having been too dry at the roots at some time (it may have been months ago), or the plant has been removed from a shaded to a more sunny position; or again, it was injured by the extreme cold of last winter. Hundreds of plants in the windows of sitting rooms have lost their foliage this summer—a certain result of the extreme cold of the preceding winter, while hundreds more were killed by the frost gaining access to the rooms. As you do not state the conditions under which your plant was grown we are unable to give you a more precise reply. If the plant is very large, while the pot in which it is growing is small and much crowded with roots, watering it twice a week with weak soot water will be beneficial. If you tie up a handful of soot in a piece of canvas and suspend it in a pail of water for a week you will have an excellent stimulant for your plant. The soot water may need diluting. It should be of the colour of pale sherry when used, and quite clear.

Potatoes and Melons (Old Subscriber).—1, It is not necessary to allude to a clerical error that has not misled you. 2, Bedford Seedling is correct. 3, Mammoth Pearl is the name of the Potato. 4, We have answered the question relative to the Melon clearly and accurately, and have nothing more to add. 5, We have no official list of the awards. Wormleighton's Seedling is possibly correct, the card, as is often the case at exhibitions, having perhaps been placed on the wrong dish accidentally and afterwards corrected. When the report of a show has to be in print two or three hours after the completion of the judging it is obviously impossible to verify the accuracy of every name and award. In this case all the cards were not placed on the dishes until 1.15, and the report was in the printer's hands at 2.30—an hour and a quarter after the judging; so that if there were only two errors, and one of them a comma, our reporter may be complimented rather than otherwise on his work. In two of the gardening journals Wiltshire Snowflake is credited with having received the first prize in the new variety class, and in two others Wormleighton's Seedling. The name of this variety, as you have quoted it, has not appeared in any gardening journal.

Names of Fruits (H. P.).—The Pear is Caillot Rosat; the Plum is Nelson's Victory. The Peach we cannot name without the leaves and the flowers. (R. Adams).—It is not Jefferson Plum but Transparent Gage, a most delicious variety. (Henry Berry).—It is Diamond Plum. (Henry Riches).—1, Beurré Diel; 2, Duchesse d'Angoulême; 3, Beurré d'Amaulais. The others are not yet in condition for naming. (George Swales).—Please send wood, foliage, and fruit of the Apple as you propose, also of the other variety if possible, and we will submit them to close examination.

Names of Plants (X. X.).—1, Polystichum angulare proliferum; 2, Lastrea dilatata, may be by some called a variety, certainly not the Hay-scented Fern; 3, Cystopteris fragilis, Brittle Bladder Fern; 4, Cystopteris fragilis var. dentata. We have recently seen it in Scotland, and it seems to be intermediate between C. fragile and C. Dickiana; 5, Athyrium filix-femina, Lady Fern; 6, Polystichum angulare. (Winchester).—Paulownia imperialis. (Arthur Paine).—Zephyranthes candida. (D. B.).—We do not undertake, as we have often mentioned, the naming of varieties of florists' flowers; but we have no objection to state that the crushed Fuchsia flower we have received resembles Earl of Beaconsfield. (W. C. B.).—1, Very unsatisfactory specimen, but it resembles Paullinia thalictrifolia; 2, Selaginella cuspidata; 3, Selaginella Martensii; 4, Adiantum hispidulum; 5, Selaginella Galeottii; 6, Adiantum tenerum. (W. Begbie).—Mentha piperita. (G. O. S.).—The specimen appears to be a good form of Lathyrus latifolius var. ensifolius. (Reuter).—1 and 2 cannot be identified without they are bearing spores, as we previously informed you; 3, Tropaeolum speciosum. (E. D. C. I.).—Lobelia fulgens ignea. (D. J. N.).—Sedum spurium.



POULTRY, PIGEON, AND BEE CHRONICLE.

SHED ACCOMMODATION FOR CATTLE.

(Continued from page 294.)

OUR further treatment of this subject would by no means be so complete as we could desire, unless the question of farmyard economy and the best form of farmstead as a whole are fully considered, but more especially that portion relating to covered yards or farmsteadings. We have gone rather minutely into the question of box feeding, yard and shed feeding, &c., with accommodation for cattle, in former parts of these remarks as being necessary in themselves, and also as parts of a set of buildings for farming purposes. It is now, however, our intention and wish to take up the matter so that the farmsteadings may not only

be well placed and covered-in, but considered also as to the best mode of placing the different apartments in the buildings in relation to each other. This attention is needed to form an economical farmstead whereby the cattle shall be best preserved in health and condition, and the farm produce—whether of hay, straw, roots, &c., together with purchased foods for cattle—shall be so expended as to preserve the most valuable portions of the manure arising from their consumption in the most useful state and condition. There is, too, another point—that of economy, to be considered in the cost of these erections which come within the term of farmsteading.

For the purpose of explaining our subject we shall refer to essays and plans of farm buildings which have on several occasions been in competition for prizes offered from time to time by the Royal Agricultural Society of England, and also refer to papers which have been read and discussions entered into at the meetings of the Council of this Society. We feel justified in assuming that in these contests for prizes, and the discussions upon the subject, are included the best designs for farm buildings that have ever emanated from the most intelligent agricultural architects, and the most clever and practical farmers to be found in the kingdom. In the year 1849 prizes were offered by the Royal Agricultural Society for the best constructed farm buildings, which brought out various competitors. The prize plans, the highly commended and other competing plans, were all very valuable at the time—in fact, they may even now be examined with interest and advantage, as they are shown in the Society's Journal for the year 1850. The late Mr. Fisher Hobbs and Lord Kinaird have both furnished valuable essays upon the subject, which will also be found practically described in the Royal Agricultural Society's Journal also. We must call attention to the paper and plans produced before the Council of this Society on the 18th of June, 1862, by Mr. John Elliot, architect of Southampton, which exhibited some novel and important points not to be found in any previous plans and statements referring to these subjects; but it was left for the Royal Agricultural Society to crown their endeavours to obtain the best and most important information by offering prizes for plans of farm buildings at the London International Exhibition in 1879. On reference to the report of the Judges as to the plans submitted for competition we find that it was most extensive—in fact there were sixty-eight sets of plans sent in for competition from thirty-nine different authors, of which only three sets were disqualified as not fulfilling the conditions required by the Society. No prizes, however, were awarded on this occasion, principally on account of the cost; but at the recommendation of the Judges a high commendation was given to the plans of Mr. W. E. Keates of Hanley, Staffordshire, which represented a homestead and dairy arrangement suitable for a farm of mixed arable and pasture land of 400 acres, a description of which, with a ground plan and isometrical view, is given amongst five others, with a full description by the authors, not only of the objects and purposes of all parts of the buildings, and with detailed estimates of the materials required in the erections, but also as to the total cost. In considering the cost of the buildings, as shown by Mr. Keates's plan, we find that Mr. Bailey Denton, in his report as one of the Judges, says in this case the estimate of the competitor himself was £6146 for homestead and dairy, exclusive of the dwelling house, road approaches, and contingencies, which, together with architects' charges, would raise the outlay on this farm of 400 acres to upwards of £18 per acre. Such a charge the Judges considered no farm of this size, even if it consisted of the best land and commanded the best market, could bear without loss to the owner, let attendant circumstances be what they may. It therefore appears if we are to take the commended plan entirely for our guide in erecting buildings on a farm, it could not be done except by

making an injudicious outlay; we will therefore endeavour to make some comparisons between this plan and that of Mr. Elliot and others which deserve notice, in order to draw some conclusions therefrom in the interest of the home farm, or any farm in fact. We can, however, only allude to either, in the absence of plans, to the general advantage or otherwise of the system involved in management, and the style and cost of the buildings, which our readers perhaps will scarcely understand sufficiently without reference to the plans themselves, as given in the Royal Journal for 1879, also for 1850, 1862, and the *Agricultural Gazette* of November 4th, 1878, the last-named giving a plan of the dairy homestead designed by Mr. Gilbert Murray, which obtained the first prize at the London Dairy Show in October, 1878.

The first point we will consider is the site of the homestead; and we think it should neither be too highly elevated and exposed, nor yet low enough to be below the fog level; at the same time it is well that it should be placed near some pasture land at a lower level, in order that the drainage both of liquid manure and the rain water from the buildings may fall of their own gravity to the pastures for the purpose of irrigation. After all the arrangements which we have proposed for utilising the liquid manure there is nothing equal as a matter of economy to its use for watering grass land, but the rain water being mixed with it on entering the pastures serves to dilute it, and distribute over a large area of land. Nearly all the plans exhibited arranged for the corn and hay to be stacked near the buildings; but we consider that a better plan is to stack the corn, &c., in the fields where grown, except in a field or two near the farm premises, and not extend the time of securing the stacks in our fickle climate, for we would sooner carry the straw and hay to the homestead as required than that the corn should be ricked at the homestead, the former being done without risk, and at a leisure time for horses and men. Let us take Mr. Keates's plan of buildings first. Now we find stalling for cattle, horses, the piggeries, and also the barn implement shed and other farm offices very fairly placed in relation to each other; but we do not approve the position of the dung pits, although they are a necessity whilst three or four yards are retained in the plan. Now, these are covered it is true; but are they required or necessary when ample accommodation for all the stock is well arranged, and the drainage and ventilation well provided for, as it is in this case? We think not, and consider that the great expense incurred by covering these yards is, under the circumstances, a great defect as compared with other homesteads. On referring to the plans exhibited in 1849 for the Royal Agricultural Society's prize, which was awarded to Sir Thomas Tancred's homestead, and which is made up of detached buildings with uncovered yards between them; and although the boxes and stalls, stables, &c., are good, we find that a fixed engine only is provided, and a large collection of corn stacks in the rick yard near. Our object in naming these points is to show the contrast with more recently approved systems. We, however, think the award was an error, and that the commended plans furnished by Messrs. Spooner and Elliot contained fewer defects and offered more advantages. For instance, the cattle boxes and the tramways were more convenient and better placed, with improved roofing and ventilation; still there was in these plans the open yards, the fixed engine, and the collection of ricks to which we have previously objected.

We must now refer to the entirely covered homestead by Mr. Elliot, plans of which were exhibited at the Council meeting of the Royal Agricultural Society on the 18th of June, 1862, and the advantages of their construction and position was explained by an illustrative statement read by the author, and which at the time raised a discussion amongst the members, and generally of approval by the practical men. As space will not allow us to go into the minute details of the plan we will endeavour to furnish

an idea of its advantages. The buildings may be constructed in two ways—with brick, wood, iron, glass, &c.; also with brick, iron, glass, &c., entirely. The latter proposal is to make the buildings fireproof, all except the barn and its surroundings, which would contain straw, hay, corn, &c., the burning of which would fuse the metal if constructed of brick and metal only. The large amount of value in live stock which may be in the buildings would therefore not require to be insured against fire. The main block of the buildings consists of accommodation for cattle, and is but an aggregate of distinct areas, each of 12 feet square. There are two double ranges of boxes and two single ranges, with four tramways for the conveyance of food and litter and the removal of manure. The elongated block of the building runs east and west; the horse boxes are on the north side, each 12 feet square, excavated 18 inches, so that one box will accommodate one horse with manure accumulating under it, or filled with earth will afford room for one only or two tethered, and the manure removed daily. On the south side is a range of spaces under cover for young stock, pigs, &c., and a lambing yard for ewes. The other or central boxes afford space for fattening bullocks, fattening pigs, &c., and are capable of being used for all the purposes required on the farm, such as dairy cows, mare and foal, &c. The whole of the internal fittings being of iron framed as required are removable at pleasure, when the whole area may be used as a covered farmyard; but this will not be required in these days. On the western end of the site is the barn, surrounded by lean-to buildings, as root, hay, straw, corn, and meal stores, also the house for a portable steam engine, for when not employed in cultivating the land it is easily placed, and used for thrashing corn at the barn, and giving also motive power to the root and chaff-cutters, &c. The cattle food when prepared is taken to the cattle boxes by three tramways with turn-tables, each leading into the central building across a gangway of 20 feet, thus cutting off fire if it occurred in the barn. At the east end is the covered dung pit, implement shed, drill house, and artificial manure store, with tramways leading from the boxes across a gangway into the dung pit. The roofing of the building is of iron and glass, and well ventilated by its peculiar construction. These buildings, which will cost about £2200, are chiefly intended for a farm of 400 acres, consisting principally of arable land.

WORK ON THE HOME FARM.

Horse Labour.—Some horses may still be employed in working the land under autumn fallow, in order that the couch and weeds may be removed which had been previously brought to the surface. The carting of dung on to the fallows and lea ground in readiness for ploughing and ridging-up as a preparation for sowing with Wheat will be continued, the late rains having greatly improved the condition of land for ploughing. The fallow land and that where roots have been fed off will come up closer and firmer; also the Clover leas, which have lately been rather dry and hard, can now be ploughed easily, and enable the land to be laid more correctly when turning the furrows. The Rye and Trifolium, Vetches, &c., will by this time have been sown. The horses must now be employed in preparing and drilling winter Beans; 2 feet apart is the best distance, and half a bushel of winter Vetches per acre will answer a good purpose if drilled with the Beans. The next work will be ploughing for Wheat, especially upon the chalk hill farms, where the Wheat ought to be sown earlier than in the vale farms. The management of horses at this time of year is very important, because after they cease feeding off green fodder it is wrong for them to depend entirely upon dry food, such as Oats, Beans, and hay alone, and therefore allow them roots of some kind, not exceeding, however, 10 or 12 lbs. daily, and if pulped and mixed with hay chaff it will assist them very much, especially whilst the seed time for Wheat continues. The best roots are white Belgian Carrots, Parsnips, or early sown Mangolds; but Cabbages, common Turnips, or Swedes will do better after Christmas, when the animals have become accustomed to root-feeding. The foals which dropped in May and previous may now be weaned and allowed a hovel and small yard attached. If two run together so much the better, for they are always quieter when kept in pairs and do not attempt to break out when they have companions, especially if they are regularly fed with green fodder or pulped roots. Carrots are best, hay chaff, bruised Oats, and a little scalded bran mixed with other food during the first fortnight of weaning. They should also be placed, if it can be so arranged, as to be out of sight of other horses which may be passing to and fro through the farmstead.

Hand Labour.—The men will be spreading manure, filling dung carts, collecting couch on the fallows and filling into carts, also assisting in turning over the swarths of Clover which may have been held over and cut for seed, and assisting at carting and stacking the crop as soon as it is pronounced dry enough by the home farmer to be in saving condition for carting to rick. It is a common saying that the land after a crop of Clover saved for seed should not be sown with Wheat, but be held over for Oats or Beans until the spring, in consequence of the land being impoverished by a seed crop. But this is an error, for the roots of Clover are the nourishment for the Wheat crop, and it is proved that the weight of roots is much greater per acre

after a crop of seed than when the plants are cut for hay or fed off by sheep. Dairy cows should now receive Cabbages when they come to the stalls at milking time, or else have some strewn over the pasture where it is bare. If no Cabbages or other roots are available at this time they should get 3 or 4 lbs. of cake each per day. This will not only add to the quantity of milk and extend the milking period, but improve the quality of the milk and maintain the condition of the cows. The weaned calves and all young stock should also get a little food beyond that obtained from the grass land, and should either lie in the sheds at night or upon a high dry pasture well sheltered. It is at this time of year that young dairy stock are so subject to the quarter-ill or kill-calf if allowed to remain at night time on the meadows and pastures below the fog level. The sooner the animals intended for stalling or boxing to be fed for beef are placed in their winter quarters the better, as they will consume their allowance of cake, &c., with but little benefit if left out in the pastures at night beyond this period, even if they get plenty of grass upon a rich soil. If the home farmer requires to buy bullocks for winter feeding let him buy those in good condition; in fact, at this time of year when the farmers in the grazing districts are selling off, cattle just beneath the quality required by the butchers can often be purchased and fed in boxes to much greater profit than poor animals. The stocks of down ewes have offered to the ram well so far, and they will continue to remain together for another month. The long-woolled ewes, too, should have the rams running with them for the next seven or eight weeks, and in case their lambs are to be sold in the Metropolitan Market the rams should be of the horned Dorset or Somerset breed. The lambs will not come horned, but there will be numerous twins, and the coats of the lambs will be much closer and firmer—so desirable in the eyes of the butcher. The horned ewes in their native counties of Dorset and Somerset will now be heavy in lamb, and will be travelling to the fairs for sale. The best place to obtain them is at the Appleshaw and Wayhill fairs in Hampshire during the first and second week of October, where they are sold in great numbers. But the very finest ewes from the choicest stocks are often purchased on the farm where they are bred, and sent up into the home counties for rearing the house lambs and the early supply up to Easter.

ADVANTAGES OF A HOME FARM.—No. 2.

SOIL ADAPTABILITY.

THE first thing to take into consideration is the nature of the soil, as the basis upon which all our efforts depend, the indicator to guide all our subsequent culture, as well as our purchasing of stock. For example, on a deep loam or rich alluvial soil we would endeavour to form a herd of cows of a good strain of milky Short-horns, but on light shallow soil Kerrys would be altogether preferable. So, too, would our arrangements for culture be effected. On a plain with level square fields steam tackle could be used advantageously, but upon the hill farms we must revert to horses. The undulating surface of some of our farms here in Sussex is extraordinary. I have had three gangs of haymakers at work in a meadow of 8 acres, and each gang would often be out of sight of the others in some of its numerous hollows! On such land steam ploughing is out of the question; light iron pair-horse ploughs answer best, and do as much work with equal efficiency as the heavy old four-horse ploughs used to do upon the wealden clays. I will refer to

DRAINING THE LAND.

Drainage is of vital importance, and should be thorough in every part of the farm, both pasture and arable. Much ignorance still exists concerning the philosophy of this simple operation. I have seen land laid down for permanent pasture after corn with the ridges and water furrows unlevelled, yet not one pipe drain was laid in the whole meadow, notwithstanding the frequent complaints of how cold and wet it was, how soon growth ceased, and how badly stock did upon it.

Upon the home farm here the whole of the land has been drained, principally with 2 inch pipes, not with invariable success, our difficulties being greatest in bogs and steep slopes where springs abound, bursting out occasionally in unexpected places. A little extra pains and the application of 4-inch pipes is generally sufficient as a remedy. Bad workmanship is frequently a cause of failure. The ordinary method of beginning a drain at the lowest point, laying down the pipes and covering them with the excavated soil, which is thrown upon them as it is taken out to make the drain, so that the process of excavation and refilling is simultaneous, is so expeditious and economical that it cannot be set aside; yet it is objectionable upon the score of the facility with which it enables a careless workman to conceal any defects at once. It is therefore advisable to pay a good price, to exercise a close supervision, and to prove each drain before the upper end is closed.

One of the especial benefits of drainage is warmth. Thoroughly drain waterlogged soil, and an elevation of its temperature and of that of the atmosphere in its immediate neighbourhood soon

follows. This natural sequence has been called in question. "To raise atmospheric temperature you must drain by the square mile, a few acres would be like a drop in the ocean, and would do no good," has been said by those who cannot stoop to see the good of little things. Probably persons living in a flat country find a very equable temperature over a wide district. Here in hilly Sussex we have a difference of 3° or 4° in 200 yards, and a difference of 10° within five miles!

Some six years ago I had to deal with a piece of bog which will serve as an illustration. Its area was about 6 acres; half was fenced off for an ornamental bog and left undrained, and the remainder was drained and added to an adjacent pasture. Main drains 4 feet deep, with plenty of diagonal branches of 3-inch pipes, were made from a stream well up to the higher part of the bog, the trenches being 18 inches wide and half filled with alder faggots covered with soil and turf. The effect has been remarkable. In the ornamental undrained portion Bog Cotton, Asphodel, Sundew, Bog Campanula, and a host of kindred plants continue to flourish, Sedge Grass and common Rush abound, and hoar frost is visible early in autumn and late in spring upon its cold sodden surface. The drained part, on the contrary, has undergone a total change. Rushes have almost disappeared, the coarse herbage has become fine, the surface dry and warm, and its general appearance is so like that of the ordinary meadow land that no difference is perceptible. Some of the bog drains will eventually have to be taken up, cleansed, and relaid, for they exhibit a decided tendency to become choked by an ochreous deposit caused by the action of air gases upon those contained in the water drained from the ferruginous boggy soil. Science is of use here in showing us that this is a natural result, which, however vexatious, is not attributable to faulty workmanship, and which would prove decidedly profitable could one obtain enough of the deposit in the pipes, for it is undoubtedly a purer form of ochre than is often found in commerce.—EDWARD LUCKHURST.

POTATOES IN YORKSHIRE.

It is many years since I became a subscriber to "our Journal," and there is no periodical that I subscribe to which I anticipate with more pleasure than my Thursday's Journal. Glad was I when you found a corner for the "Home Farmer," although I would rather he would advise us poor tillers of the soil in the northern counties, to which some of the instructions do not apply. I should like to add my quota on strong-growing Potatoes. I agree with the majority of your correspondents that in a wet season there are no varieties free from the disease, though, no doubt, Champions and Magnum Bonums have proved themselves the least so, at all events hereabout; but what shall I say of the quality? I had yesterday a dish of Champions and one of Regents cooked for test purposes. One was a ball of flour, the other (Champions) was floury certainly, but not the colour to a lover of a mealy Potato, and the flavour was not so good. The "Bonums" are worse in quality though an excellent cropper. Last year I cut six sets to separate eyes, planted them at the same time in the field with the others, all being manured alike, and the produce was twice as much as the two rows on either side of them, and not one diseased, whereas the others were very much so. Yet notwithstanding their disease-resisting properties, those varieties will not, in my opinion, become popular in more genial seasons, for like Mangolds and some of our gross-headed Swedes they take too much out of the land, and it is not very difficult on a following crop to point out where they have been planted. On the cause or prevention of the disease we are here no wiser than others; but we do prevent it to a certain extent—by "heaping" we call it. After the plants are earthed with the plough a man takes the stem in his hand, whilst another puts a spit of soil upon the crown of each root; this prevents the rain running down to the tubers. For manure I find nothing answers better than spent hops mixed with fold manure, with soot at the last earthing. I sold one field five weeks ago, as I was afraid with the wet we were then having they would not stand. My surmises were right, but since then we have had three weeks' fine weather up to the 18th; since it has rained every day. But what was my surprise as well as pleasure when I went into the field to-day to hear the purchaser say they had not gone any worse than they were a month ago. I went also into a field of one of my neighbours, who reported the same; so that it would appear though a crop be struck with disease, if very fine weather ensues it will be checked.—A WEST RIDING GROWER.

THE WORCESTER POULTRY SHOW.

THIS Show was as usual held last week during the great Hop market, not as last year in a fine hall, but in a long marquee erected

close by. The Exhibition was entirely of chickens, and a glance round it confirmed our belief that the year has been a very propitious one for young poultry.

Game are always a great feature in this district, and headed the list. A special prize of Worcester china went to a capital Black Red cockerel belonging to Mr. Owens; the same gentleman also won first in pullets with an excellent Black Red; the second pullet, too, a Brown Red, was good. First among the cockerels, "Any other variety Game," was a Duckwing. There were several good Piles in this class. The first pullet also was a Duckwing.

Cochins.—The first Buff cockerel was a very well-shaped bird, a good yellow throughout in colour with fluffy hocks; second we did not admire, he was ragged and deep in moult, with too much hock, but certainly promises great size; third too dark in tail, but a promising cockerel. The cup pullet was a beauty, of a fine Canary colour, broad, deep, and forward. 76 very highly commended (Darby), a rich-coloured bird with splendid foot feathers, we should have put second. In the other cockerel class a Partridge was first, lacking neck hackle, but a fine bird in form; second, a White with a pretty comb; third, a Partridge, a short-legged bird, very bright in colour. In pullets first was a beautifully marked Partridge; second, a rather leggy Partridge; third, a pretty but small White; a good Black very properly had an extra prize.

Brahmas.—The first Dark cockerel promises to be a very fine bird; his breast was ticked, and we were glad to see that birds so marked win again. We liked the second as well as the first save that he is smaller; third was quite a chicken, and we thought very promising; the black-green of his plumage was particularly good. Mr. Comyn's very highly commended bird is one of the largest cockerels we have ever seen. 123 (Mrs. Turner), a fine bird but out of condition. In Dark pullets first was good in shape, the white of her ground colour and the black of her pencilling particularly clear and good; second also well marked but very leggy; third far too much hocked. The first Light cockerel was very good in colour but a little narrow; second, magnificent in size but somewhat yellow, and hocked; third, a clearly marked bird with too much tail. The Light pullets were remarkably fine and forward, all the winners were excellent; first was all round a most beautiful bird.

French made two very fine classes; the first cockerel was a magnificent Crève, but with one centre toe twisted to deformity; second, a Houdan, very fine in head; third, Houdan, capital in shape but with bad feet. The first pullet was a Houdan, beautiful in crest and beard; second a Crève. Mrs. Lane's very highly commended Houdan was very fine.

Dorkings.—There were some remarkable chickens in the class, and such as for size and maturity would a few years ago have astonished us. First were a good pair of Silver-Greys. Too often judges think that the Dark variety must necessarily always have first prize; in the present instance, however, we thought one or two of the Dark pairs better than these Silvers; second were very large and forward Darks; third, Darks, the cockerel a short-legged and massive bird; extra third, a beautiful pair of Whites such as we have not seen for a long time.

Spanish were few; the cup birds showed great quality of face.

Polands.—First, good White-crested; second, Golden, the pullet with a magnificent crest; third, Silvers.

Leghorns.—First, White; second, very large Brown.

Any Other Variety.—First, very fine Black Minorcas; and third, fine Scotch Greys.

Game Brahmas made immense classes. The cup went to a very stylish Black Red cockerel, and splendid in colour, but drooping his wings when we saw him.

Any Other Variety.—First, a large creamy Silver Sebright cockerel; second, a White, rose-combed; third, a Golden Sebright. In the pullet class, too, we were glad to see that second went to a White again. The breed is little patronised now, and very pretty.

PIGEONS.

September is not a good month for showing Pigeons. The winning Carriers were all black. Some of the Pouters were very, deep in moult. Dragoons were very numerous; first, a very good Blue. In Barbs Mr. Baker carried off all the prizes; first and second Blacks; third, a fine Red. *Jacobins*.—First, a Red, very good in hood; second, a very good Black. *Turbits*.—First and cup, a Red, beautiful in head properties; second, a Black, very clean in thighs and lustrous in colour. *Owls*.—First, a White African; second, the same variety; third, a Silver English. *Tumblers (Short-faced)*.—Mr. Baker's Almonds won; *Long-faced*.—A pretty Red rosewing, first. *Fantails*.—First and second, beautiful little birds, with round tails and good action; third, a superior bird but not in such condition. *Antwerps*.—A very good Silver Dun was first in the Short-faced class. *Any Other Variety*.—First, a capital mottled Trumpeter; second, a Black Turbitten; third, a Blondinette.

POULTRY.—*GAME*.—Black or Brown Red.—Cockerel.—1 and Cup, R. A. Owens. 2, Robert Dance. 3, T. M. Hopkins. *etc.*, J. C. Huxtable. Pullet.—1, R. A. Owens. 2, S. Matthew. 3, W. Lodge. *Any other variety*.—Cockerel.—1 and 2, A. G. Potter. 3, J. Colgrove. *etc.*, Capt. J. S. Walton, G. H. Fitzherbert. Pullet.—1, T. Pyon. 2, S. Matthew. 3, J. Colgrove. *etc.*, J. Powell. **COCHIN**.—Buff.—Cockerel.—1, Butler Smith. 2, Rev. H. B. Southwell. 3, Lady Allsop. *etc.*, W. Nicholls, Miss Molineux, G. H. Wood. Pullet.—1 and Cup, Mrs. E. Lang. 2, Lady Allsop. 3, Thomas Seal. Extra 3, J. Bloodworth. *etc.*, Mrs. C. Pattinson, Alfred E. W. Darby, Messrs. Cockroft & Danby. *Any other colour*.—Cockerel.—1, C. Sedgwick. 2, Miss Bullock. 3, W. W. Beckerley. *etc.*, Mrs. J. Turner. Pullet.—1, C. Sedgwick. 2, C. Brown. 3, Miss Bullock. Extra 3, C. Thompson. *etc.*, G. Furness. **BRAHMA**.—Dark.—Cockerel.—1, E. Kendrick, jun. 2, E. Pritchard.

3, G. B. C. Breeze. *vhc*, A. Comyns, jun., F. Bennett, Marchioness of Hastings, Dr. J. Holmes. *Pullet*.—1 and Cup, C. Davenport Jones. 2, R. P. Wheadon. 3, L. C. C. R. Norris. Extra 3, Dr. J. Holmes. *vhc*, S. W. Thomas, R. P. Percival, Rev. T. C. Peake, R. A. Baker. *Light*.—*Cockerel*.—1, G. B. C. Breeze. 2, Miss Mollinex. 3, Mrs. W. C. Drummond. *Pullet*.—1, Austen Bigg. 2, C. Graham. 3, Mrs. J. Turner. Extra 3, Philip Haines. *vhc*, S. Lucas, Austen Bigg, Alfred Webb. FRENCH.—*Any variety*.—*Cockerel*.—1, Pobert Pound. 2, A. E. Ward. 3, W. H. Copplestone. *Pullet*.—1, Rev. Thomas Nolan. 2, Robert Pound. 3, Edward Taylor. *vhc*, W. Nicholls, John Porter, J. T. Calvert, Miss E. Williams, Mrs. David Lane. HAMBURGHS.—*Any variety*.—*Cockerel*.—1, George Randall. 2, C. F. Copeman. 3, G. Simpson. *vhc*, Messrs. A. E. & L. A. Pritchard, Thomas Lund. *Pullet*.—1 and Cup, T. Rynan. 2, George Randall. 3, Thomas Lund. DORKINGS.—*Any colour*.—*Cockerel and Pullet*.—1, W. Nicholls. 2, Butler Smith. 3, T. W. Jones. Extra 3, O. E. Cresswell. SPANISH.—*Cockerel and Pullet*.—Cup, Lady Allsop. 2, Jabez Walker. 3, J. Powell. *vhc*, John Aldridge. POLANDS.—*Any variety*.—*Cockerel and Pullet*.—1 and 3, Ben Rawnsley. 2, G. W. Boothby. *vhc*, C. Bloodworth. LEGHORN.—*Cockerel and Pullet*.—1, G. M. Morecraft. 2, Rev. Grey Skipworth. 3, H. Moser. *vhc*, R. H. Foster. ANY OTHER VARIETY.—*Cockerel and Pullet*.—1, A. E. Ward. 2, J. Bishop. 3, Mrs. Muir. *vhc*, John Addicott. GAME BANTAM.—*Black or Brown Red*.—*Cockerel*.—1, Cup, and 2, E. Walton. 3, E. Morgan. *vhc*, H. Chard. *Pullet*.—1 and 2, E. Morgan. 3, E. Winwood. *vhc*, E. Walton. *Any other variety*.—*Cockerel*.—1, E. Walton. 2, C. H. Jelf. 3, Mr. G. Roberts. *vhc*, W. Hinton. *Pullet*.—1, J. Liveston. 2, C. Davenport Jones. 3, T. W. Adams. Extra 3, G. Roberts. *vhc*, E. Watson, E. Winward. BANTAM.—*Any other variety*.—*Cockerel*.—1 and *vhc*, M. Leno, jun. 2, E. Walton. 3, E. Pritchard. *Pullet*.—1, M. Leno, jun. 2, E. Walton. 3, Adam Clarke. *vhc*, Mrs. W. R. Hopkins, M. Leno, jun. SELLING CLASS.—1, J. Bishop. 2, H. Moser. 3, W. Weston. 4, Mr. G. Simpson. *vhc*, Mrs. Kettlewell, E. T. Gardom, J. S. Ham, Rev. T. C. Peake, H. Yardley.

PIGEONS.—CARRIERS.—*Cock or Hen*.—1, Cup, 2, and 3, John Baker. POUTERS.—*Cock or Hen*. 1 and 2, John Baker. 3 and *vhc*, A. Pratt. DRAGONS.—*Cock or Hen*.—1 and 2, Wallace Smith. 3, Ben Rawnsley. Extra 3, H. F. Sparrow, John Baker. *vhc*, W. Britenden, James Lush, jun. BARBS.—*Cock or Hen*.—1, 2, and 3, John Baker. JACOBS.—*Cock or Hen*.—1 and 3, Messrs. Wayman & Buchanan, 2, A. E. Gould. *vhc*, J. F. Harvey. TURBITS.—*Cock or Hen*.—Cup, John Baker. 2, O. E. Cresswell. 3, Thomas Homes. *vhc*, Messrs. Hellier & Wilkins, O. E. Cresswell. OWLS.—*Cock or Hen*.—1, Richard Woods. 2 and *vhc*, John Baker. 3, J. F. Harvey. TUMBLERS.—*Short-faced*.—*Cock or Hen*.—1, 2, and *vhc*, John Baker. 3, Henry Yardley. *Long-faced*.—*Cock or Hen*.—1, 2, and *vhc*, Richard Woods. 3, Ben Rawnsley. FANTAILS.—*Cock or Hen*.—1 and 2, O. E. Cresswell. 3, John Baker. ANTWERPS.—*Long-faced*.—*Cock or Hen*.—1 and 2, Ben Rawnsley. 3, S. Wade. *Short-faced*.—*Cock or Hen*.—1 and *vhc*, J. C. Waterhouse. 2, J. Baker. 3, H. Yardley. ANY OTHER VARIETY.—1 and 2, John Baker, 3, Arthur Allen. *vhc*, A. P. Maurice, Gerald S. Knott. SELLING CLASS.—*Cock or Hen*.—1, John Baker. 2, C. F. Herrieff. 3, Mrs. W. Riddell.

The Judges were for poultry Mr. E. Hutton; for Pigeons Mr. J. Hanley. The show of both seemed to us remarkably well judged.

TOY PIGEONS—THE TURBIT.

To my mind there is no more lovely and charming Pigeon than the Turbit. It is one of the long-established varieties which was described in the last century in a way that might now serve our purpose, but that the "fancy" has somewhat changed as to the Turbit's head properties, a point or shell being now considered almost indispensable, whereas formerly the plain round head was in vogue. Turbits are peculiarly Pigeons of the amateur; not that there is any want of fine specimens in the hands of dealers, but somehow this variety has long greatly flourished in the lots of several enthusiastic amateurs, who have for many years quite held their own against professional exhibitors in a way that has hardly been the case with any other variety. Clubs for the encouragement of particular varieties of poultry have of late come into fashion, and the fanciers of Turbits have been the first of the Pigeon amateurs to follow suit. The Turbit Club has drawn up a careful and elaborate standard of excellence, which (from such great authorities) does not seem to us always very explicit or intelligible to beginners. They are treading on dangerous ground, for, unfortunately, strong differences of opinion arise even between the brother fanciers of poultry and Pigeons. The question of the Jacobin's hood led to most acrimonious dissensions. Fortunately the Turbit's head properties have not aroused so much excitement; still its admirers have their differences, which must be considered when we come to look at the Turbit point by point.

The chief charm of the breed is the delicate softness of its plumage, and the pretty contrast between the colour of its shoulders and the white of the rest of its body. A flight of Turbits of mixed colours is a charming sight; there is no breed the colours of which have been raised to such perfection—rich jetty black, glowing red and yellow, soft blue, and still softer silver are among them. It seems as if the Turbits were the artist's ideal Pigeon, for in more than one famous picture of Venus we have seen blue Turbits as her attendant Doves. A neat little head, a dark intelligent eye, a proud yet in no way unnatural carriage, and a frill down the breast, in good specimens turning both ways, completes its contour. But as I have before said, the Pigeon critics are becoming very scientific, and I must in another article more minutely discuss the Turbit's points.—C.

HOW LONG CANARIES WILL LIVE.

It is surprising the number of years Canaries or Canary mules will live penned up in their little wiry abodes. Several instances have come to my knowledge of such birds attaining the age of from ten to twenty years; and it may be of interest to those who keep Canaries to peruse the remarks of a very old authority, who says—"As for the time that Canary birds live, I cannot ascertain it, for I may remark, that as they differ in constitution, it may thence

be concluded that they live longer or shorter according to the strength of such constitutions. But to be somewhat more particular; a cock Canary bird that is put up to breed every year seldom lives above ten years, and generally the seventh year is not fit to be put up to breed, for very often he will leave the hen to lay addled eggs. A hen that sits every year seldom goes beyond six or seven years, or if she does, it is because she has been well managed, or that she is of an extraordinary constitution. Of all sorts of Canary birds the grey live the longest, being much stronger than the lemon-coloured. A Canary of a strong constitution—one that has been well managed and never put to breeding—may live twenty-two years, but then he is subject to many diseases, as want of stomach, blindness, losing his claws and voice, and sometimes having the gout, and in that condition his languishing life, which threatens a speedy and certain death, is as troublesome to him, by reason of the sharp pains he continually endures, as a man's is to him when he has arrived at a certain uneasy degree of old age, at which the only sovereign remedy is no other than death."—GEO. J. BARNESBY.

VARIETIES.

THE MANGOLD WURTZEL MAGGOT.—A Lincolnshire correspondent, writing to us relative to the ravages of this maggot (*Anthomyia betæ*), states that during July it made its appearance, and in about a fortnight the foliage of the plants appeared as if seared with a hot iron, and the crops appeared as if ruined. After the heavy rains, however, of August few insects could be seen, the plants put forth fresh leaves, and now the crops promise to be very good, although the roots are not so large as they would have been had they not been attacked so seriously early in the season.

— AGRICULTURAL PROSPECTS.—From our reports this week it appears that there is a considerable acreage of Barley yet to be harvested, and it is to be feared that the damage to this outstanding portion of the crop by the rains of the past fortnight has been very considerable. The Bean crop is to a great extent still in the fields, and for the most part will require considerable time for ingathering. The heavy rains have penetrated corn stacks that were left unthatched with a view to immediate thrashing, and as this has occurred on a rather extensive scale much of the excellent condition of the ingathered Wheat crop has thereby been lost. Thrashing operations have been suspended, and the ricks will now have to remain until their sweating is over. As the yield becomes better known its unfavourable character is spoken of in a very pronounced manner. Root crops are now known to be heavy, with the exception of Mangolds in a few districts; but this particular crop, though irregular, will probably turn off a good weight per acre. Grass has increased on the pastures, and cattle are doing well in most parts of the country. Losses are still reported amongst lambs, and there are well-founded apprehensions as to the soundness of flocks throughout the shires. The rains have facilitated the ploughing of stubbles but have somewhat hindered the working of fallows. As winter Tares are cheap a considerable average will probably be sown; in some cases they have been got in exceedingly well.—(*Mark Lane Express*.)

— BRAHMAS AND COCHINS AS MOTHERS.—Every poultry-keeper, says an American writer, who has had any experience worth mentioning, knows that the Brahmans and Cochins make the best mothers in the poultry kingdom. Of course a Brahma mother will not get up and fight friends, enemies, strangers, cats, dogs, and everything else that ventures within 40 rods of one of her chicks, as a Game mother will, but nobody wants one hen to do fighting enough for a regiment. The majority of poultry-keepers prefer hen mothers that are peaceable and can be approached with some degree of safety.

— THE SWAN.—Swans generally pair for life, their whole behaviour offering a beautiful example of conjugal fidelity. The two birds show the greatest affection for each other, always swimming in company, and caressing one another with their bills and necks in the most interesting manner; and should either be attacked the other will show fight in the most vigorous manner, though, of course, the male is the most powerful and courageous. Both birds help to prepare the nest, the male chiefly gathering the materials, while the female seems to take the chief part in the actual construction. A

swan's nest is an enormous affair, being built up of a large mass of coarse water plants as a foundation, which is lined with finer grasses. In this six to nine eggs are generally laid, which are, of course, very thick in the shell, and generally of a dirty white colour, sometimes dirty pale green. The time of incubation has been differently stated, but we believe Bechstein to be right in fixing it at thirty-five days, though some have said forty-two. The young when hatched are very thickly covered with down, and are generally taken to the water by the mother when only a day or two old. There they are watched over by both parents with the greatest care until grown enough to provide for themselves.—(From "*The Illustrated Book of Poultry*" for October.)

— MANURES AND PASTURES.—The *Agricultural Gazette* summarises the results of some experiments on the above subject as follows:—"Farmyard manure increased the bulk of the grasses, and in so doing diminished the weeds, with one or two exceptions. As a general principle, all manures tended to drive out the weeds by increasing the better herbage. Mineral manures alone diminished the proportion of the grasses by lending special aid to the growth of the leguminous plants, especially of the perennial Clover and the Meadow Vetchling. Ammonia salts, on the contrary, favoured the production of cereal grasses, increased their bulk, and by so doing almost destroyed as by a single blow the leguminous plants and the weeds. The hay crop was increased, but this occurred at the cost of several species which do not love ammonia salts; while at the same time—and this is worth noting—the ammonia dressing developed in a very remarkable degree the leaf of the grasses rather than the stems and seeds. Of the mixed manures, mineral manure and ammonia salts gave the greatest increase of crop, still favouring the graminaceous or grassy plants, almost to the exclusion of the Clovers and the leguminous plants. Weeds, with one or two exceptions, were driven off, and the development of the seed and stem of the grasses was particularly marked. It may here be mentioned with regard to the effect of sewage, that it increases the free-growing coarse grasses, such as *Poa trivialis*, *Triticum repens* or couch, *Lolium perenne*, and *Holcus lanatus*, and it follows of necessity that the weaker plants must be crowded out. When the bulk of a particular kind of herbage is increased, the number and proportion of the plants which had been the rivals of that herbage are certain to be diminished. The plants which receive the manures that favour their growth soon preponderate over those which are of lesser stature, and must necessarily be overcrowded. Ammoniacal manures increase the bulk of the grasses and thus crowd out the Clovers, while mineral manures alone increase the luxuriance of the Clovers and thus crowd out the grasses."

— SEED-SOWING MACHINE EXHIBITION IN ITALY.—An international exhibition of seed-sowing machines will be opened on October 20th at Pisa, Italy, under the direction of the Agrarian Committee, when prizes of gold and silver medals will be conferred by the Italian Minister of Agriculture for the best machines. The conditions with regard to exhibits may be obtained at the Italian Consulate, 31, Old Jewry, E.C.

NEW AND OLD PRACTICE IN BEE-KEEPING.—No. 2.

PEOPLE of every age have been attracted by the marvellous, and almost everybody is naturally desirous of novelty. Even in bee-keeping it is pleasant to indulge wonder—to venture on untrodden ground and make important discoveries. The cause of foul brood, we are told, has been discovered in Germany, and the discoverer has been noticed and rewarded by the Emperor.

The existence of the disease called "foul brood" was known in Great Britain a hundred years ago. In Scotland then it was called "backgone brood," and it has there borne that name ever since. What is meant by this name is, that some brood has died before it before reaching maturity, and has become foul. Ever since I can remember Scotch bee-keepers talked about backgone brood as a dreaded and destructive disease, one that is incurable and fatal in its effects. This has been my opinion all through life. The cause of this disease, we are told, is a fungus which attacks and destroys brood in the cell. The brood thus attacked bursts at a certain stage of development and becomes a putrid mass, hurtful to the health of hives and activity of the bees. A fuller and more lucid description of the cause of foul brood was given in the *Journal* some months ago, representing the German

discovery. Some weeks afterwards I read a quotation from a German report of a discussion on the question of foul brood. One statement of the report pleased me: it was to the effect that the gentleman who is looked upon as the discoverer said that the disease of foul brood is produced by many causes. In order to be brief I am making no quotations, but simply writing from memory.

Let us now notice the discovered cause of foul brood and call it a fungus, which spreads in hives and kills the brood. It has often been asserted that the honey of infected hives is affected and has power to transmit the disease to other hives; nay, that every bee that fills its bag from a diseased hive carries a bagful of poison; furthermore, that the very atmosphere surrounding a diseased hive is infected and carries the disease or plague to sound healthy hives by indraughts. Foul brood is an awful scourge in a hive, and if the above description be correct it is a scourge to be dreaded in every bee-keeping locality. I do not know enough either to confirm or contradict the account given of the nature of foul brood. I have never known the disease carried from one hive to another by indraughts, and often have I seen diseased hives closely surrounded by healthy hives. Last spring I smelt foul brood in a strong hive standing in the middle of my apiary. The hive was condemned at once, but execution was delayed, as we resolved to take a couple of swarms from it, but owing to the unfavourable season the bees were never fully mature for swarming; it was sent to the moors with the hope that they would gather some honey before the time of execution came. It yielded 20 lbs. of honey, and in the refuse combs foul brood was evident enough, but not very extensively spread.

As to the statements of the honey of diseased hives containing and carrying the infection, I have to say that they are exaggerations doubtless; for if such statements were correct where could clean and sound hives be found? Swarms from infected hives would carry the disease with them, and the distemper would soon fill every apiary and be universal. I have had many swarms from diseased hives, but the disease was left behind. Never once have I noticed the disease go with the swarm. Last year I noticed that an old stock hive was severely diseased in October. The bees were driven into a small hive and fed. It survived the winter, yielded a swarm, and is now a clean and healthy stock kept for another year.

Now a word or two about the remedy which has recently been recommended as effectual and able to remove the distemper from the apiaries of Great Britain. The remedy for foul brood we are told is salicylic acid applied by spray or sprinkling. Our friends will surely excuse me for here again expressing the opinion that foul brood is an incurable disease. Foul brood, as I understand it, is dead brood; these can never be restored to life or removed from the combs. That the spores of fungus may be destroyed by some application may be true. In such a case it would be prevention, not cure; and let me say that more evidence is required to make me believe that salicylic acid will prevent hives from being attacked and hurt by this terrible disease. A gentleman of considerable experience amongst bees knows that I think he is too easily influenced by novelties and statements made without proof, wrote to me the other week admitting in a modified sense the correctness of my opinion, stating that he had been misled in some things, one of which is the application of salicylic acid. In his hands it was a failure. The idea of preventing or curing foul brood by mixing this acid in their food does not, from my point of view, stand to reason. If the cause of the disease is a fungus and it spreads amongst the combs by spores, how can the food of bees affect it? The acid cure is new amongst us. I believe it will pass away and be forgotten, and the old remedy—if it is right to call it a remedy—will come to the front and gain the confidence of experienced bee-keepers. And what is the old remedy? The destruction of all diseased hives or combs. I heard the other day of an apiary extensively diseased, and that the owner had resolved to destroy the combs of all his hives and begin afresh with his bees and comb foundations. This is a wise and commendable resolution, the safest and best course he can pursue; and we have no doubt as to its success, for it never fails.

Now is a good time to examine hives for foul brood. If any cells are covered with concave or hollowed lids there is reason to fear. Such cells should be pierced and examined. If they contain foul matter let the bees be driven into an empty hive at the earliest convenience and fed into stocks. If the bees build combs to the extent of one-third of the hive only, the stock will be worth half a dozen of foul-broody hives for future work, and likely enough the value of the honey and wax in the foul hive will be greater than the cost of syrup used in feeding the bees. If foul brood be discovered in a hive in spring, say in March, the bees should be driven out at once and united to another hive. If not

discovered till near the swarming time, one or two swarms should be taken and the combs destroyed. I have already said that foul brood never loses its hold of hives; if not destroyed it will in time destroy them. Let me say in conclusion that the disease of foul brood will never become a plague in an apiary managed on sanitary conditions. It is hardly ever found amongst young combs, and if the combs never become old the disease can never extend far or do much harm. The most effectual way of preventing foul brood is to keep the bees in young sweet combs, and for honey and profit from bee-keeping young combs are better than old combs.—A. PETTIGREW.

REVIEW OF BOOK.

A Manual Rational of Bee-keeping, by G. DE RIBEAUCOURT.
Translated from the French by Arthur F. G. Leveson Gower.
London: David Bogue.

THIS little book is interesting, if only as furnishing us with some notion of what progressive bee-keeping has done for Switzerland, and how far the Swiss are either ahead, abreast, or behind the rest of the world.

It is curious, too, to find a work in the English language, and published in London (albeit only a translation), which absolutely ignores, because its author is evidently entirely unacquainted with English or American progress in bee-keeping. There is not the faintest allusion to any writer on bees, or to any system of managing bees outside the continent of Europe. We are, indeed, told in an "Appendix" that the Italian or Ligurian bee "has been introduced into Germany, France, and even into America," and there is similarly one solitary mention of England in connection with "nucleus boxes." That is all.

Altogether it is evident that bee-keeping in Switzerland is not "abreast" even of our experience in England or America—at least if M. Ribeaucourt is to be taken as representing the advanced knowledge and practice of his countrymen, and yet there is evidence of an awakening there. Our author advocates "rational bee-keeping," and he is quite on the road to the attainment of this object. For instance, we find him putting in the first place of improvement the use of moveable bars. The bar-frame is yet to come; but with moveable bars a great deal may be done in the profitable and "rational" management of bees, which is wholly out of the power of the "fixist." The author also gives preference to wood over straw as the material for the hive, which in so cold a country as Switzerland is a great testimony in favour of it. His hives, too, are larger than those in common use around him, although still far too small, for he only recommends a size of 13½ inches inside measurement by 6½ inches in height.

M. De Ribeaucourt does not contemplate even with his improved hive any extensive honey harvests, and yet we are persuaded that Switzerland might yield an enormous quantity of honey in good years high up or low down among its mountainous valleys. The common Swiss hive is here stated "not generally to contain more than from 15 to 18 lbs." It is, therefore, no bigger than our ordinary English skep; but our author seems satisfied with a winter store of about 25 lbs. in his stock hive, although he says he has sometimes placed supers over straw hives of the capacity of from 30 to 32 lbs. of honey, which have been filled in a fortnight or three weeks. It is evident that the honey harvests by the ewt. or more, which are frequent in America and not uncommon in England, are all but unknown in Switzerland.

The extractor is another improvement which our author mentions and recommends; that in use by himself is the invention of Schmiedl. It appears from the woodcut to be a much more clumsy affair than those which are now in use in England, but doubtless it answers its purpose sufficiently well.

There are sixteen chapters besides the appendix, which include everything important for the apiarian to know in order to the rational and profitable management of his bees. We may add that the appendix deals chiefly with the Italian or Ligurian bee, which our author very strongly recommends.—B. & W.

OUR LETTER BOX.

Growth of Fowls (A. F.).—The answer to all your questions must depend much on the condition in which birds are kept: thus a well-fed Dorking or Cochins will be full grown at eight months, but it will not be at its heaviest. A Spanish fowl takes rather longer. If in perfect health, and the weather be favourable, a fowl will moult thoroughly in two months. The older they are the longer the process. If a Cochins is to weigh 10 lbs. at maturity, we should be content to find him weighing 5 lbs. at four months, or even 4 lbs. A pound per month is good growth.

Worms for Poultry (N. R.).—The worms collected from ground, to the surface of which they had been driven by a solution of chloride of lime, may be given to poultry with perfect safety.

Golden Pheasants (Steward).—Golden Pheasants are not productive till they are two years old. It is after the same time the cocks get their plumage. Barley is the best food, but they are fond of and require green food. They must have clean water. They are very hardy, and require little or no shelter. They may be allowed to run about in all weathers. If the house is not already covered we advise you not to cover it. The birds do not require it, and any little gain by keeping out rain is more than counterbalanced by the loss of sun.

Mating Pigeons (A Constant Reader).—The influence of a cock Pigeon does not continue with a hen during the winter. We believe there is no fear of your Antwerp hens next year showing any taint from the Archangel and Trumpeter cocks; at least, such has been our experience after breeding Pigeons of many kinds for twenty-five years.

Large Hives of Bees (Derby).—Last year it is no wonder your bees did nothing. This year seems to have been nearly as bad in the midland counties across England. Probably they began the year, as many of ours did, in a very enfeebled condition, and it took them a long time to recover. We advise you to stick to your large hives, and not give way to discouragement. Yet, if you can afford it, we should recommend you to add a couple of stocks to your apiary this autumn, taking care to have them really good. They will travel well in October, and may be had cheaper than in spring. Feed them a little (those you now have) to quicken them during warm weather this month.

Killing Bees (O. F. W.).—The old practice of killing bees with brimstone is exploded, and we cannot advocate its adoption. Honey is now taken from the bees by driving them into another hive. Smoke from fustian rags is blown into the hive to partially stupefy the bees, the hive is then placed on its crown (upside down), an empty hive is placed on it mouth to mouth, wrapping a tablecloth tightly round the junctions to keep the bees in, then the bottom hive is drummed with both hands or two pieces of wood for fifteen or twenty minutes, and the bees ascend into the empty hive; the honey is thus obtained, and the bees preserved for future work after being fed with syrup during the winter. The present is the time for honey-taking.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51°32'40" N.; Long. 0°8'0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1880. Sept.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Snn.	19	29.717	51.6	48.9	S.W.	56.8	59.8	45.5	105.0	41.4	0.050
Mon.	20	29.829	54.8	49.6	N.W.	55.1	63.9	42.1	118.0	38.2	0.020
Tues.	21	29.915	53.1	51.2	N.	55.0	58.0	47.2	66.0	40.8	0.020
Wed.	22	29.939	59.2	56.9	S.W.	55.0	70.3	49.1	117.7	42.6	—
Thurs.	23	30.129	60.4	58.3	N.	57.0	70.6	58.8	114.7	57.0	—
Friday	24	30.117	57.3	56.7	N.	58.0	64.6	51.3	81.4	45.0	—
Satur.	25	30.024	58.5	55.6	S.W.	57.9	67.3	52.5	92.8	45.9	—
Means.		29.967	56.4	54.0		56.4	65.2	49.5	99.4	44.4	0.090

REMARKS.

19th.—Fine in early morning, rain from 9 A.M. till noon; afternoon and evening fine, bright, and breezy.
20th.—Very fine, clear, cool day, with bright sunshine.
21st.—Dull, cold, misty day; slight rain all the forenoon and dark; clearer with glimpse of sunshine at 4 P.M.; foggy damp evening.
22nd.—Dull in early morning; fine, bright, much warmer day.
23rd.—Early part of morning dull and overcast; very fine, bright, pleasant day; evening close and overcast.
24th.—Thick white mist in early morning, hazy and dull generally, slight sunshine 2 P.M. till 3 P.M.; clear fine evening.
25th.—Fine pleasant day, but rather cloudy the after part.
Slightly cooler and much drier than the two previous weeks.—G. J. SYMONS.

COVENT GARDEN MARKET.—SEPTEMBER 29.

WE have little alteration to quote this week, trade being dull and prices hardly maintained. Several samples of American Apples have reached us, making their full value. Kent Cobs quiet.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 0 to 4 6	Melons	each	2 0 to 4 0
Apricots.....	box	0 0 0 0	Nectarines....	dozen	2 0 8 0
Cherries.....	½ lb.	0 0 0 0	Oranges	½ 100	0 0 0 0
Chestnuts.....	bushel	12 0 16 0	Peaches	dozen	3 0 10 0
Figs.....	dozen	0 6 1 0	Pears, kitchen..	dozen	0 0 0 0
Filberts.....	½ lb.	1 6 1 9	dessert	dozen	2 0 4 0
Cobs	½ lb.	1 6 1 9	Pine Apples....	½ lb.	1 0 3 0
Gooseberries...	½ sieve	0 0 0 0	Plums	½ sieve	2 6 4 6
Grapes	½ lb.	0 9 3 0	Walnuts	bushel	0 0 0 0
Lemons.....	½ 100	12 0 18 0	ditto	½ 100	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms	dozen	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney....	½ lb.	0 0 0 6	Onions	bushel	3 6 5 9
Beet, Red.....	dozen	1 0 2 0	pickling	quart	0 0 0 0
Broccoli	bundle	0 9 1 6	Parsley..... doz.	bunches	6 0 0 0
Brussels Sprouts..	½ sieve	0 0 0 0	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Peas	quart	0 0 0 0
Carrots	bunch	0 4 0 6	Potatoes	bushel	3 9 4 0
Capicums.....	½ 100	1 6 2 0	Kidney	bushel	4 0 0 6
Cauliflowers.....	dozen	0 0 3 6	Radishes.... doz.	bunches	1 6 2 0
Celery	bundle	1 6 2 0	Rhubarb	bundle	0 4 0 0
Coleworts..... doz.	bunches	2 0 4 0	Salsify	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzoneria	bundle	1 6 0 0
Endive	dozen	1 0 2 0	Seakale	basket	0 0 0 0
Fennel	bunch	0 3 0 0	Shallots	½ lb.	0 3 0 0
Garlic	½ lb.	0 6 0 0	Spinach	bushel	3 0 0 0
Herbs	bunch	0 2 0 0	Turnips	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 2 0 0



7th	TH	Alexandra Palace Bird Show—four days. Sale of Bulbs at Mr. Stevens' Rooms, King Street, Covent Garden. 20TH SUNDAY AFTER TRINITY.
8th	F	
9th	S	
10th	SUN	
11th	M	Royal Horticultural Society—Fruit and Floral Committees at [11 A.M.]
12th	TU	
13th	W	

VIOLAS.

IF you wish to have your flower garden always gay at a trifling cost—if you wish a bright companion for your chaste Snowdrops when the early spring sun glints on their snowy bells, or a lake of Tyrian purple in which to float the gorgeous scarlet of your Geraniums and Verbenas under glowing midsummer skies, or a soft carpet of divers colours at the feet of your lordly Gladioli in autumn—if you wish to have a flower which in heat or cold, in storm or sunshine, in wet or drought, will be always bright and sweet—then let me recommend you to invest in a collection of Violas. They will not cost you much; a few shillings will stock a small garden, and a few pounds will plant a domain. The price of one of Mr. Kelway's choice Gladiolus corms, or the cost of a single Orchid, will give you a supply of flowers nearly all the year round in every shade of colour from purest white to deepest indigo—marvellous shades of blue, and lilac, and purple, and crimson, and gold, which exist in no other border flower in such profusion and perfection.

Violas had but a small beginning, but they are steadily progressing towards greatness, and bid fair to become general favourites, and an indispensable adjunct to every well-managed and attractive garden. But to have Violas always except in the very depth of winter, and to have them in perfection, we need a knowledge of their ways and requirements, for, like every other plant, they gratefully repay you for good and loving cultivation, and pine and dwindle away if neglected. Now, I love Violas; I have hundreds, yes, thousands of them, and having grown and cultivated them for many years, will tell you all I know about them. Perhaps someone who would like to grow them, or someone who has tried and failed, will haply light on these lines in our Journal and exclaim with satisfaction, "Why, this is the very thing I want!" I hope it may be so.

Well, then, to begin. You would like some, of course, as early as possible in the spring, dotted in and out it may be among your Snowdrops and Crocuses, or your fancy may lead you to give them a bed to themselves. At all events it is now September, and by the time this is printed it will be October. Do not lose any time, but get your bed ready. Do not let it be in a shady place at this time of year, they like the spring sun and care not for frosts. Work it up fine and "plumb" as we say in Devonshire, and put in plenty of good manure half decomposed. I am a great advocate for soot and a little lime in addition, because slugs and wireworms are terrible enemies of Violas when young, and they have a special objection to

both the above manures. If your soil is a rather heavy loam so much the better; mine is very heavy, and yet they grow like weeds. Buy your young plants as soon as you can. Rooted cuttings at this season are to be purchased at a cheap rate, and there is nothing better for present planting. When you receive them, if they come by post as they generally do, place them in water for a few hours until quite revived, and then, if possible, pot each separately in a small pot in sandy soil, and keep them in a rather close shaded frame until they appear to be growing, when more air and light may be given, and at the end of a fortnight or three weeks they may be planted out in their permanent quarters. You can if you like put them out at once after standing them in water for a few hours, but some will then probably fail, and by the other method every plant will grow and establish itself strongly before winter. These are the plants that will bloom earliest in spring and onward until July, when they will have seen their best days, and if left to themselves will grow shabby. But to keep up a continuous supply of flowers I like to make two plantings—one in October to come in with the spring bedding plants, and another in February for the summer garden. They should not be planted out for a bedding display later than the end of February, as they do not take hold of the soil sufficiently after that to make luxuriant growth.

As for the earliest blooming plants, cut them down when they have lost their freshness, and they will soon throw up a fresh supply of young flowering shoots, some of which you had better use for cuttings, taking them out of the heart of the plants with a sharp twitch, when you will probably find them come up with a few small roots attached. These strike almost anywhere and at any time except in winter. I have them in all sorts of corners and places; in the sun or in the shade, it does not seem to matter, they all grow, and having plenty of young plants they can be used as wanted. This is the secret of success—keep up a supply of youngsters to take the place of the old plants, and you will always have flowers.

Now as to the best varieties. The best Whites are Mrs. Henry Pease, Crystal Palace, Pilrig Park, and Vestal, the latter rather creamy. Best Yellows—Sovereign, Golden Gem, Golden Perpetual, Brilliant, and Grievei. Best Blues and Lilacs of various shades—Amabilis, Bluebell (small), Admiration, Aeme, Freedom, Waverley, and Holyrood. Maroons and Crimson—Forerunner, Mulberry, and Attraction. There are a multitude of others, and I hear that Messrs. Downie & Laird of Edinburgh are offering some new varieties, said to be a great advance on the older sorts. But all are lovely, and I am sure that if you follow my advice you will succeed in adding a new charm to your garden, and have reason to thank—R. W. BEACHEY.

SUMMER AND AUTUMN PEARS.

As the planting season is approaching it will not be inopportune to direct attention to some evidence that was published in our columns at the end of 1879 and beginning of the present year, on the merits of several varieties of Pears for summer and early autumn use. With the object of concentrating attention on this subject we published a series of portraits of good Pears, and the qualities of some of the best-known varieties were duly discussed. Figures of some of the later Pears will follow in due course, and in the meantime it will be well to summarise as briefly as possible the opinions of

cultivators on the varieties that were referred to in the discussion.

First, as to the earliest or summer Pears that ripen in July or early August according to seasons and districts. There are but few of these, only the following being named:—Amiré Joannet or Harvest Pear, Petit Muscat or Small Cluster Pear, Doyenné d'Été or Summer Doyenné, and the Green Chisel. Of these the Petit Muscat and Green Chisel were only mentioned once each by two cultivators, and the weight of evidence was overwhelmingly in favour of Doyenné d'Été and the Harvest Pear, the former for growing as pyramids on the Quince for affording early dessert fruit, the latter as standards on the Pear for yielding larger quantities of juicy Pears for ordinary family use and market purposes. These Pears, especially the former, soon go "sleepy," and it is seldom more than from one to three trees are required. They are useful and should be planted in the open, as wall space can be better employed by other varieties.

Succeeding the above, the following late summer and early autumn Pears were named:—Jargonelle, Williams' Bon Chrétien, Citron des Carmes, Clapp's Favourite, Beurré Giffard, Beurré de l'Assomption, Ambrosia, Early Bergamot, Desirée Cornelis, Madame Treyve, and Souvenir du Congrès.

Jargonelle and Williams' Bon Chrétien were regarded as indispensable, as they were found to succeed in all soils where Pears will grow, and in all districts. Both of them bear early on the Quince, but make finer and fruitful trees on the Pear stock. They are adapted for the north aspect of walls in the south and midlands, and for standards and espaliers almost anywhere except in the extreme north and very cold localities, where they require the shelter of walls; indeed, a tree of each is worthy of a good aspect on a wall in any garden where space can be found for the production of early and fine fruit. It may be said that of all the Pears mentioned in the discussion none met such wide and general approval as Williams' Bon Chrétien. It was elicited that a Mr. Stair (not Wheeler as was generally supposed), a schoolmaster at Aldermaston in Berkshire, was the raiser of this popular Pear, which is known in the locality as "Stair's Pear."

Citron des Carmes was described by many as a useful Pear, especially as a standard for orchards, but in some very strong soils and cold districts the fruit often cracked more or less seriously. It is, no doubt, a serviceable Pear for the purpose indicated, but possesses neither the good appearance nor high quality of some other varieties; still a tree or two should be included in most collections.

Clapp's Favourite was very highly spoken of by Mr. Abbey, who described it as much more tempting than Jargonelle, possessing all its qualities with the addition of a musky aroma, the tree being grown on a Pear stock, and favoured with a south-west aspect in a high and exposed site in Yorkshire. This is undoubtedly a very excellent Pear, and will in all probability become more extensively cultivated as its merits become better known.

Ambrosia is considered by Mr. Lumsden of Bloxholm, a gardener of great experience and sound judgment, as the "best autumn Pear." Grown as an espalier in a walled garden in Lincolnshire the fruit ripens before Williams' Bon Chrétien. It is a great bearer and of excellent musky flavour. It is a round medium-sized fruit of delicious quality, but does not keep long after it is gathered. An espalier pyramid or a standard may well be grown where space can be afforded.

Beurré Giffard did not meet with anything like unanimous approval; while it was favourably spoken of by some cultivators as a good grower, free bearer, and of acceptable quality, by others its aromatic flavour was not liked, "WILTSHIRE RECTOR" for instance, an undoubtedly good judge of Pears, never being able to eat more than half a fruit at a time of this variety. It was further elicited that it has another drawback—namely, early, very early flowering, and the blossoms, except in favourable seasons and localities, being liable to injury or destruction by frost. It is quite distinct in flavour, and those who like highly perfumed Pears should grow this variety.

Beurré de l'Assomption was described by those who have grown it as a Pear of first-rate quality and handsome in

appearance. It is the largest of all the early Pears, but to have it exceptionally fine it should be grown in a good position against a wall, of which it is worthy. It grows well on both the Pear and Quince stocks, on the latter making a good pyramid, in which form, and in a good position, fruit of the highest quality is produced, but not nearly of such fine appearance as that produced by a wall tree. It may here be mentioned that many, probably the majority, of early Pears are of better quality when grown in the open than against walls, which suggests that wall space should as much as possible be devoted to later varieties, or to a tree or two of such of the earlies which are desired to yield fruit as early as possible and of the first size and appearance.

Souvenir du Congrès, like the preceding, has not been extensively fruited. All who have grown it describe it as a very large and handsome Pear and of excellent quality, yet in the latter respect not quite equalling its prototype Williams' Bon Chrétien. It is not spoken of as a free bearer, but, on the contrary, is stated by some cultivators to be rather shy. It is a very imposing fruit, fine for exhibition, and makes a handsome and good dish. To have fine fruit the tree must have the assistance of a wall. The general opinion, so far as it has found expression, of this Pear is that it is larger, later, but not better than Williams' Bon Chrétien.

Désirée Cornelis, although it does not appear to be largely grown, has been accorded the high approval that it merits as a delicious summer dessert Pear. The tree is a good grower and bearer, and makes a handsome pyramid on the Quince. Grown against a wall the fruit is larger but not better, and there is no doubt whatever that this Pear would succeed well as a standard in favourable districts, and in some form or other it is certainly well worthy of cultivation.

Madame Treyve does not appear to be so extensively grown as its merits deserve. Those who have had experience with it speak in high approval of its quality, and it is undoubtedly a very fine Pear of the first quality. In most localities it requires the aid of a wall, which it well deserves, to produce fruit in fine condition. This is a Pear that those who do not possess it may safely add to their collections.

As successional varieties to those above mentioned the following Pears have been submitted for consideration, and most of them have been figured and incidentally alluded to by correspondents:—Summer Beurré d'Aremberg, Hesse, Suffolk Thorn, Beurré Superfin, Beurré Hardy, Comte de Lamy, Emile d'Heyst, Doyenné du Comice, Flemish Beauty, Bonne d'Ezée (syn. Brockworth Park), Fondante d'Automne, Louise Bonne of Jersey, Maréchal de Cour, Marie Louise, Marie Louise d'Uccle, and Pitmaston Duchess; and further particulars from various districts of these or any other Pears ripening during October and November would be opportune and instructive.

THE GLADIOLUS.

RIPENING THE CORMS—DISEASE—CULTURE.

I FIND the present time of year the most critical in the management of this noble plant, the ripening or non-ripening of the corms having a great effect not only on the succeeding season's flowering but on the health of the plants. A few remarks on how I treat these may therefore be useful. We have all heard of the Gladiolus disease, and some of us have had practical experience of it, how the young plants turn yellow and sickly, and in most cases dwindle away and die before the summer is far advanced. Notwithstanding the very bad seasons we have lately experienced I have not seen the disease for at least three years, and, strange as it may appear, it was a bad season that led me to the means of successfully treating the disease. One of these bad seasons which set in a few years back gave us at lifting time a lot of small unripened corms; these were well attended to the following year, and instead of allowing them to ripen, the whole stock was lifted with balls of soil attached, some being placed in pots and others planted in inside borders. I have ever since lifted the corms and ripened them off indoors and with the most satisfactory results. This year the plants are in robust health, and have been flowering since the end of July.

Though this has been an extra fine season the young corms received a check through the severe drought, and are only now making up for time previously lost. Though some of the stock is ripening in the ground I shall lift most of them and ripen them

off under glass. The corms are not expected to be large this year, but that is not a matter of much importance. I keep the stock in a perfectly cool room, the corms being laid out singly on shelves, there they remain until growth commences in spring. Varieties such as Colbert and Shakespeare start before the others, and some growers advise planting at different periods, commencing as early as February with the first batch. I do not find this necessary to insure an early bloom, as, like Potatoes, some varieties arrive at maturity much quicker than others, and very early planting causes them to make a dwindly growth, consequently I do not think it advisable to plant before April. I have in previous years set out our stock in clumps in borders. In addition to the usual winter double digging and dunging given to the borders for other occupants, soil was taken out in spring where the *Gladiolus* clumps were to be planted, and about a barrowful of fresh loam, dung, and soot was placed in each hole, mixing the natural soil slightly with it. From six to twelve corms were planted in each hole so prepared. This is a plan I can recommend to growers of small quantities as yielding excellent results with little labour. Our collection is getting somewhat large now, and I grow them in lines in a prepared piece of ground, but it is possible the clumping system may be reverted to.

In preparing for growing them in masses in lines or beds the ground is trenched about 2 feet deep, turning over the bottom of the trench and adding dung; 4 to 6 inches of dung ought to be worked in whilst the trenching proceeds—I prefer a mixture of manure from the stables and cow houses. Fresh soil added to the bed is always beneficial. Before the time for planting out arrives a dressing of a couple of inches in depth of old Mushroom bed manure should be worked in to the depth of 7 or 9 inches, mixing the manure well in. This dressing is of great benefit to the plants in the earlier stages of growth. Draw the rows 15 inches apart and deep enough to allow a layer of coarse sand, and the corms to be 4 to 5 inches below the surface when covered. As growth progresses a surfacing of horse droppings which have been prepared by heating in heaps will be of much advantage.

The way I have supported our plants this season was by placing strong stakes 20 feet apart in the rows and running a strong string from stake to stake about 2 feet above the ground level. The spikes were then securely tied to the string. I found this a neat and effective mode of support, and that it took very much shorter time than it would to put single stakes to each plant.

Growers for exhibition generally give quantities of liquid manure to their plants. I am very doubtful if it is necessary; it certainly is hurtful to the stock. Our plants were only watered once about the end of August, and very many spikes were produced with from ten to thirteen flowers open at one time and fresh. Dewy nights and warm days is the weather which produces the finest spikes. A newspaper fixed like one of the caps common on the 5th of November on each spike as the first flowers open, gives sufficient shelter to those intended for exhibition. Spikes at their best may also be kept for a few days in a cool cellar; they can also be forwarded by cutting and placing in bottles of water in a hothouse. Those which have only three blooms open can be expanded in a cool room, but the individual flowers are not so fine in this case. Some of the old varieties are still the best, such as Shakespeare, Madame Desportes, Madame Basseville, Meyerbeer, and Octavie hold their own against most of the newer varieties. "D., Deal," is still working amongst the *Gladiolus*. We will doubtless hear what his experience has been with them, and the varieties he considers best in time for buyers.

—R. P. BROTHERSTON.

VEGETABLES IN 1880.—No 2.

TOMATOES.

No vegetable ever became so rapidly popular in our gardens and markets as the Tomato. True, it is not a new introduction; but until very recently it was only cultivated by a few, and growing it for market was hardly ever thought of. Now the demand for Tomatoes is not confined to large towns, or their cultivation to large gardens. A few years ago all the varieties in cultivation might have been counted on the fingers of one hand, but now they are nearly as numerous as of Melons or Potatoes. There is hardly a gardener who has grown them for a year or two but now grows one of his own "raising" or "improving," and many nurserymen give long lists of Tomato names. After trying a score or more "varieties" and "selections" I have come to the conclusion that good varieties might still be counted on the fingers, and for ordinary cultivation and general supply a few really good varieties will prove more satisfactory than a large and mixed collection.

Trophy, in its original form, is still one of the best. It grows robustly, fruits freely, is of good shape, attains a large size, and

possesses fine flavour. Criterion is another fine easily-managed variety, and so is Carter's Greengage. The former is a very deep salmon colour; the latter is bright yellow, and for flavour unequalled. These three most distinct and meritorious varieties should be grown by all who cultivate Tomatoes. Stamfordian is, according to my experience of it, straggling in growth, shy in setting, and very uncertain in fruiting—that is, the fruit does not come in clusters like the others, and those which do swell have become all shapes and forms. Some are of fine shape and splendid size for exhibition purposes, but except for this it will not repay the grower. Nesbit's New Victoria and all those of the "Cherry" section are very ornamental and useful where Tomatoes are valued for dessert; but for general or extensive kitchen use they cannot be recommended. Large Red, a very free-fruited sort, is too much furrowed to commend itself. America appears to be the head quarters of the Tomato family, and I have more faith in good varieties coming from there than this country. A new one introduced from there this spring by Mr. Gilbert of Burghley, and named "Paragon," does credit to its name, as it seems likely to be one of the finest Tomatoes in cultivation. I have numerous fruits of it at the present time ripe against the open wall, and some which I cut measured 18 inches in circumference and weighed about 1 lb. each.

Anyone with a good Melon pit may easily have Tomatoes all the year round, and those with no glass at all may have them on the open wall from the beginning of August for the next four or five months, as the supply of ripe fruit can be extended by cutting all the green fruit before the frost injures them, and hanging it up in a dry room to ripen gradually. I have had plants fruit very well as standards grown here and there on a border and trained up a stake, but growing them against the south aspect of a dwelling house, glass house or wall is the surest place for them doing well. Good soil at the root and a restricted top growth produces good results; when allowed to run wild they are useless. Some of my plants growing underneath standard wall trees are little more than a yard high with a single stem, and they are bearing as many as thirty-four good-sized fruits. To secure early crops the best way to grow the plants is in pots. Seed sown in January will soon germinate in a gentle heat, and the young plants produced being potted on as they become ready until they are in 8-inch and 10-inch pots will bear ripe fruit in April. They should be grown in a compost of two parts loam and one of decayed manure. Early in the season they must be placed in an unshaded position, and all superfluous growths be removed as they are formed; other batches may follow in pots throughout the whole season, as this is an easy and profitable way of growing them at all times. My plants in pots are generally placed in corners about the houses where no other plant would pay for attention. Much fruit has been gathered this season again from plants in pots along the back wall of a lean-to vinery. Those with plenty of other means to grow them may laugh at placing them in such a position, but where houses are limited and it is desired to make as much of every corner as possible the plan will amply repay a fair trial.

Where fruit is grown for everyday kitchen use it is necessary to try and have one lot succeeding another in a small continuous quantity; but when they are grown to preserve, excepting what is wanted occasionally for immediate use, one large quantity at any time will answer the purpose, and these may be gathered from out of doors if grown to come in about the present time. Working on this plan the earliest fruit will be had from plants in pots; that for preserving from the open air, and the later supplies must also be had from indoors. These may also be grown in pots like the earliest, as they are always handy in them to shift from a cool to a warm corner as the weather may dictate; but where an ordinary good Melon or Cucumber house exists they will do here better than anywhere else. They should be planted out in the bed like Cucumbers and trained thinly over the wires. Many do not cultivate Cucumbers after this time. Let them clear them out now, and if they have any Tomatoes in pots plant them in their place. Large Tomato plants may be transplanted in this way, and old plants if becoming exhausted in pots when planted out soon make fresh growth, and are far better for winter fruiting than tender young plants. I do not think this plan is often tried, but it deserves to be. Any temperature between 40° and 60° will answer in winter. Watering must be done carefully, and moisture should not be overabundant in the atmosphere.

KIDNEY BEANS.

Like Tomatoes these have been much finer out of doors than last year. Then Dwarf Beans did fairly well, but Runners were nearly a failure. This season both have been most abundant. As a Runner Carter's Champion has done remarkably well, the blossom not dropping much without forming pods, as is frequently the case; and the pods, besides being abundant, become of large size

and fine colour. Canadian Wonder is still a good Bean amongst dwarf varieties, and Osborn's for forcing; but the latter will meet with a strong rival in Carters' new Haricot Bean, which grows about the same height as Osborn's, but is more prolific and fruits earlier, which is a very great recommendation, as we cannot have a French Bean to fruit too soon after sowing the seed either indoors or out. Suttons' Giant White Runner is another variety deserving of notice and cultivation, as its fine pods are extremely good in flavour. Kidney Bean seed was the worst I had in the past spring, as it appeared to have been ill-matured and in many instances failed to grow: but I hope for better results next year.—J. MUIR, *Margam*.

HEDYCHUM GARDNERIANUM.

A REFERENCE to Hedychiums in your answers to correspondents last week reminds me of a magnificent batch of *H. Gardnerianum* that I saw lately in the conservatory at Buxted Park. Mr. Prinsep has planted it in one of the beds, and it has spread and become a thicket of wonderfully robust stems from 6 to 8 feet high, most of them with flower spikes quite a foot in length and nearly as much in diameter. The effect of these huge spikes of bright yellow flowers with their long scarlet stamens is very striking, and they present a very attractive appearance, to which the elegant Canna-like foliage materially contributes. Hedychiums are classed with stove herbaceous perennials, so are Cannas. Why should not both prove suitable for the flower garden in summer? It is worth a trial, for no clump of Cannas that I have seen, even at Battersea Park, is worthy of comparison with the grand bed of Gardner's Hedychium at Buxted.—SUSSEX.

VINES AT GARSTON.

LIKE your correspondent "J. U. S.," I have recently visited the "Vineyard," and send a short supplementary note to his concise description on page 305.

Grapes are grown in seven large houses, but those that attract most attention are the Madresfield Court Vine and the Vine of Gros Guillaume, which are grown on the extension system. The former is planted in a large house facing due east; it was planted in the centre of the house, and its roots were formerly inside. But two or three years ago an outside border was made, thus giving the roots a chance of spreading as well as the top growth. The branches are trained horizontally right and left and have filled the house. They are now extending a good distance into a second house 40 feet long that had been previously filled with Peach trees. This Vine annually produces heavy crops of first-rate Grapes. Under Mr. Cowan's system of management the berries never crack, and this he attributes to diminishing the supply of water after colouring commences. This is really a grand Grape, and for market purposes cannot well be surpassed. The Gros Guillaume Vine also fills a half-span house 40 to 50 feet in length, and is extending into an adjoining span-roofed house, which is to be entirely filled with it. This Vine is planted at one end of the house, the roots being entirely inside, and the rods are trained lengthways along the roof. It never fails to bear a good crop of Grapes. At the time of my visit some very large bunches fully 18 inches in length were hanging upon the young wood, yet the Vine is furnished with good-sized bunches from the oldest portion of the rods. A glance at this Vine, however, will be sufficient to indicate to a practical observer that the long-spur system, or the retention of a good portion of young wood annually, is the system pruning to pursue with this variety.

Vines in pots are grown to the extent of seven or eight thousand, including fruiting and planting canes. Of the former about five thousand are grown, and that they will fruit freely there is no doubt from the extra care that is exercised in thoroughly ripening them. Mr. Cowan does not believe in cut-backs, and has not more than thirty in his establishment. The Vines are grown from eyes into a fruiting size in one season, and are remarkably strong with plump eyes so much desired by Vine-growers. A good quantity of the parings of horses' hoofs are incorporated with the soil used for them, and two or three top-dressings of a similar compost to that in which they are potted is given during the season. Two or three low houses are devoted to the Vine eyes in the early season, and the eyes are inserted in beds of soil instead of small pots as usually practised, and when large enough are placed in 6 and 7-inch pots. The young Vines are all pinched when about 9 inches in length, and the lateral growths removed, so that the Vines have to start again from the main bud. Mr. Cowan contends, by pinching the young Vines it gives them an opportunity to make roots for a time instead of exhausting themselves by making a thin wiry growth, and that they are strengthened considerably at the bottom—much more so than if not stopped,

as they start away again after stopping with greater luxuriance. This is by no means a general practice, yet the result is all that can be desired, and the Vines are worth a long journey to see. I am informed from a most reliable authority that they are better this year than they have ever been since the Vineyard has been established.

Roses and all kinds of flowering and fine-foliaged decorative plants are also extensively and well grown in this nursery.—W. BARDNEY.

FUNGI A CAUSE OF DISEASE IN PLANTS.

PRESUMING that Mr. Luckhurst as a reasonable man is desirous of discovering the truth, and that he does not write merely to support an opinion whether it is well or ill founded, I will briefly review what he has regarded as favouring his view of the subject. The first statement was a general and positive one—that attributing disease in plants to the effect of fungi "is in every instance erroneous." Only three instances were selected to prove this comprehensive declaration, and one of these scarcely required the trouble taken to disprove it, as it was the unsupported opinion of one individual. The other two, however, were worthy of consideration, as different views have been taken of them, and the defenders of each have adduced many facts to substantiate what they regard as correct. Had Mr. Luckhurst succeeded in demonstrating that the opinions respecting the Potato disease and Peach blister opposed to his own were incorrect, he would still be far short of proving his original statement; but even in these instances he has not advanced sufficient to convince the fungologists, as he terms them, among whom I suppose he includes myself.

In the first place, treating of the Potato disease, your correspondent considers that the tissue of the plant must be diseased before the fungus can grow upon it, because he tells us the "plague spots" invariably appear before the fungus is perceptible. This is quite contrary to my experience, and in reply to a question Mr. Luckhurst gives the modified explanation that he has "never been able to detect it [the fungus] till after the disease has laid hold of the foliage." Now this is decidedly ambiguous, for the instant the mycelium has penetrated the tissue of the leaf the substance is discoloured, and the ordinary first indications of the disease appear, so that it would not be likely that the fungus could be detected before the "plague spots" are seen, as these are the discolorations produced by the poisonous action of the mycelium. As to hot dry weather checking the progress of the disease and wet weather favouring it there can be no doubt, but that only more clearly indicates the fungoid origin of the disease, and scarcely agrees with the attempted explanation that "the gradual drying-up of the tissue renders it susceptible to the attacks of the disease." Mr. Luckhurst has carefully avoided the question about the first appearance of the disease in this country—namely, why the fungus *Peronospora infestans* was unknown here before 1845; and I might further ask why that disease, if not the result of the fungus attacks, should have appeared so suddenly, and so widely and seriously affected the Potato crops?

Respecting the Peach blister Mr. Luckhurst presents us with very clear statements, which in regard to the facts I have no doubt are quite correct; but though I am "open to conviction" I am not prepared to give my full credence to the conclusions. "It is," says he, "positive assurance that enables me to say that the blister is caused by cold wind and nothing else." I have been under the impression that cold exposed positions favour the growth of the fungus, because I have repeatedly observed the blister very prevalent under such conditions. But that is not all. For several years in a garden not fifty miles from the one under Mr. Luckhurst's charge, a number of young Peach trees planted against the southern aspect of the north wall in the kitchen garden were annually severely affected by the blister; yet the position was an exceptionally sheltered one, for the garden was protected to the north and east by a hill of considerable height, and the walls both east, west, and south were sufficiently high to effectually prevent any injury from winds, which could not in this case have produced the blister. Can Mr. Luckhurst explain this, or the case described by Mr. Taylor on page 487, vol. xxxviii., when trees from a house were placed outside and were yet unaffected with blister, though those previously out were greatly injured by it? It is obvious from both these facts that the very positive statement as to the wind alone invariably causing blister is not correct; and he has not ventured on an explanation of how wind could produce such effects, nor does he give an example of similar injury being done to other trees.

That there is an analogy between plants and animals I have not disputed, only that it is not sufficient to justify the argument drawn from the supposed fact that weak human beings are more subject to infectious diseases than those in robust health, for it is

indeed "such a mode of argument that serves rather to confuse than enlighten."—S.

OLD CUCUMBER PLANTS.

ABOUT this time Cucumbers which have been grown in houses during the summer generally show signs of decaying. The leaves assume a yellow hue, the fruit ceases swelling, and the conclusion arrived at as a rule is, that the plants are "quite done" and may be thrown away. This may be the best mode of dealing with them in some cases, but not in all. When the main stems are good the old plants may often be started into growth again, to do as well or better for the next four months than young plants.

We have still the same plants bearing now as we had in the month of February last, and they have lately been dressed to yield a supply all the year round, or nearly so. When planted they were only expected to supply fruit until the end of July. Then they were in such healthy condition that a little more feeding and heat induced them to produce a large number of fine fruits, and now after the soil has been thoroughly top-dressed they are making clean fresh shoots and forming many healthy fruits, which will equal or surpass those from the young autumn plants for the next two months or more. Probably all varieties might not do so well, but Telegraph, our main variety, prospers with the treatment. Those of your readers thinking of throwing away old plants might do worse than give this mode of renewing them a trial.—A KITCHEN GARDENER.

MICHAELMAS DAISIES.—No. 1.

AUTUMN imparts to gardens an aspect of dreariness that is all the more noticeable and unpleasant immediately after the brightness of summer. The glowing colours of Pelargoniums and similar bedding plants, with the more varied and softer tints that mark the majority of hardy herbaceous plants, seem to vanish together, and in a week or two the beds that have so delighted us only possess masses of fast-decaying vegetation. In many gardens, from the fading of the summer flowering plants to the advent of the Chrysanthemums, there is comparatively little to please or enliven. Why is this? There is certainly no necessity for gardens to be so utterly destitute of flowers as they too often are during the dull months of October and November, for there are several genera of plants that contain late-flowering and attractive species well fitted to supply this demand. Among these few surpass in numbers and beauty the Michaelmas Daisies; and being of free growth, thriving in any ordinary soil, easily increased, and requiring but little attention, they unite those very useful qualities of ornamental appearance and easy culture. This specially applies to about a dozen forms out of the twenty or thirty autumn-flowering Asters in cultivation; but there are some which, from their straggling habit, diminutive and dull-coloured flower heads, are by no means sufficiently attractive to be worth growing. The select forms are, however, varied in habit, size, and colour of the flower heads. Some do not exceed a foot in height, others rise above 6 feet; some are compact and bushy, others are loose and straggling. The colours are white, lilac, blue, purple, and rose of diverse shades, and the capitula range in size between a sixpence and a crown piece. The mode in which the flower heads are borne also constitutes another distinction—namely, some are arranged in a dense corymbose inflorescence, others are loosely spread in a raceme like or paniculate manner, while a few have the heads borne singly. It will thus be seen that there is a greater diversity among Michaelmas Daisies than is commonly supposed; and whether they are employed for planting with shrubs or in the ordinary mixed border, they will amply repay their cultivator for the space they occupy and the little trouble bestowed upon them by bearing a profusion of flowers at a period when the supply from other sources is fast diminishing.

As to the relative merits of the species and varieties opinions would probably differ in some degree, but in the selection which follows those only are recommended that possess characters of sterling value, regard being paid to habit and general effectiveness of the flowers. It may, however, be well to remark first that the chief beauty of colour and form of the capitula is in the outer or ray florets, for the centre florets are yellow in nearly all the species. As the former, therefore, vary in size so we have a large or small flower head; the closeness or looseness of the arrangement and the neatness of the outline also constituting additional degrees of merit.

Aster Amellus.—This species has been in cultivation in English gardens for nearly three hundred years, as that assiduous plant grower Gerard had it in 1596; and in his interesting "Herball" he describes it under the name of *Aster Italicum* or the "Italian Starwort," as bearing "faire blewish floures, yellow in

their middles, and shaped like Marigolds, and almost of the same bignesse, whence some have called them Blew Marigolds." It has also some still more ancient historical interest, for it is famed to be the *Amellus* mentioned by Virgil. Referring to this Phillip Miller states, in his "Gardeners' Dictionary," that *Aster Amellus* abounds in the "valleys of Italy, Sicily, and Barbonne, and the leaves and stalks being rough and bitter the cattle seldom browse upon them, so that they remain in the pasture after the grass is eaten bare, and, making a fine appearance when they are full of flowers, might well engage the attention of the poet." The plant is moderately compact in habit, numerous stems rising from the



Fig. 60.—*Aster novæ-angliæ* var. *pulchellus*.

root to the height of 2 or 3 feet, bearing somewhat spathulate leaves at the lower portion, which become narrower higher on the stem. The flower heads (capitula) are about $1\frac{1}{2}$ inch in diameter, with narrow purple florets. A Russian variety of this species named *bessarabicus* is also grown; it chiefly differs from the type in the slightly larger and paler flower heads. Both these produce their flowers during September and October.

A. novæ-angliæ.—North America is the great home of the genus *Aster*, and of the numerous forms from the western continent *A. novæ-angliæ* is one of the best. This, too, is an old and well-known inhabitant of our gardens, its introduction dating as far back as 1710. The typical form is of strong growth, frequently exceeding 6 feet in height, but is not so straggling in habit as some of the tall species. The leaves are narrow and bright green, the capitula being neatly formed and of a fine purple tint. This

with the varieties mentioned below often flowers very late, especially in cold positions; but this is rather a disadvantage than otherwise, as frost is frequently severe enough to spoil its appearance before the flowers are fully developed. To avoid this evil a moderately sheltered position should be selected for it. The variety *roseus* has large flower heads, extremely regular in outline and of a bright rosy tint, very attractive and useful. Another variety is appropriately named *pulchellus*; it is not quite so tall as the type, and bears fine terminal flower heads with bright yellow central and rich purplish blue ray florets. It is a handsome variety and deserves the attention of all who desire to obtain a really attractive plant for their gardens, the flowers also proving very useful for cutting.—L. C.

[The accompanying engraving represents a seedling *Aster* which appeared in Mr. Lee's garden at Clevedon, and it seems to be an improved form of *A. novæ-angliæ pulchellus*, partaking of the colour that distinguishes the variety *roseus*. The flower heads are of good size and circular in outline, the rosy purple ray florets being closely set round the bright yellow centre. The increased size of the flower heads, the brighter colour, and the rather better form, are almost sufficient to entitle it to a distinct varietal name.]

OLD v. GILBERT'S VICTORY OF BATH MELON.

FOR the information of a writer in this Journal of September 23rd (see page 292), who says he does not know what difference there is between the old and Gilbert's Victory of Bath, I beg to inform him that they are two quite distinct varieties, and anyone who has grown Gilbert's Victory cannot mistake it for the old Victory. Why Mr. Gilbert should have named his new Melon Victory of Bath I cannot understand, as it has no resemblance whatever to the old variety of that name. I have grown the old Victory of Bath for more than twenty years; it is an excellent Melon, oval in shape, slightly netted, and its flesh is of a dark green colour. When well grown it has few equals in its class. I have grown Gilbert's Victory since it was sent out two seasons ago. I had the seeds direct from Mr. Gilbert, so there can be no mistake about it being the true variety. It is a round fruit of medium size, very slightly netted with me as a rule, but I have had odd fruits well netted, but not generally so; flesh white, and when ripe the skin is of a light yellowish colour. It is quite distinct from any other variety that I have grown.—A. PETTIGREW, *Cardiff Castle*.

A WEEK IN YORKSHIRE.—No. 3.

OAKWORTH HOUSE.

(Concluded from page 260.)

A LITTLE more remains to be said on Mr. Holden's garden to enable its character and completeness to be comprehended by your readers. A great deal might be said were anything like a detailed description attempted of the various structures and their contents, for there are some forty houses in the block, the majority of them being of large size. As only a rapid walk was taken through this maze of glass, so the reference to it must be of a general rather than a particular character.

The houses are entered from the picturesque balcony of the winter garden, the ends of some of the structures constituting the boundary of that remarkable edifice. In the centre is a span-roofed Muscat range, large and lofty, with a lantern roof. There are both outside and inside borders, and heat is afforded by twelve rows of 4-inch pipes. The Vines are covering the roof and bearing an excellent and uniform crop of capital Grapes. At the end a lean-to branches right and left, with which is connected other houses—one, a Fig house, is filled with splendid trees planted in an inside border; another, a Peach house, but in which the trees do not prove satisfactory in such a lofty house, which is better adapted for Vines than Peaches. From here we enter a very long Orchid corridor with plants one side and *Nepenthes* on the roof, the other side affording access to several other houses—*Fuchsia* house, *Azalea* and *Heath* house, which contain many healthy specimens, very large stoves filled with a great assortment of healthy plants, and on to the vinery block. There are seven vineries, some being parallel with each other, and it will be necessary to make some provision against the roots from one border crossing to the other, which would be extremely inconvenient in case of any of the Vines required lifting, which they are certain to do at some time or other. A trench down the centre between the two borders and cement walls would answer the purpose. The Vines are generally in admirable condition throughout and bearing heavily, Mr. Holden requiring a great supply of fruit for his many friends. In one house is an excellent crop of *Lady Downe's*, and the best

crop of *Waltham Seedling* I have ever seen. When in superior condition this Grape has an imposing appearance, and well ripened is of good quality. The roofs of the houses are supported by pillars, to which Tomatoes are trained on each side of the path. In other houses *Mrs. Pince*, *Gros Colman*, *Golden Queen*, and *Alieante* are doing equally well, the bunches being both large and numerous and the berries good. Some of the Vines, as in other places, lost their foliage prematurely last autumn by sudden and severe frosts occurring, and this defoliation has impaired the value of the crops. The early vinery is a lengthy lean-to, and the Black *Hamburgh* crops had been cut for some time previously to my visit. All the houses are well, even prodigally, heated, and great judgment is requisite in regard to moisture and ventilation in these large and essentially dry structures.

Passing higher we arrive at another large block of houses—four lean-to's and fourteen span-roofs, the ends of the latter opening into corridors about 10 feet wide and 160 feet long. These houses are devoted to Pines, Cucumbers, Melons, and small plants for decorative purposes, the roof of one of the lean-to's being covered in every part with Tomatoes trained to wires like Cucumbers. The crop was a prodigious one, and the thousands of large scarlet fruit had a rich effect. Hot-water pipes are plentifully, almost too plentifully, provided in all these houses for both top and bottom heat, the mains passing under the paths in the front corridor. All the paths are of cement, but the water standing on those in the plant houses incommoded visitors. The walks were therefore given another covering of cement and made slightly convex, and now, as far as regards the welfare of the plants, &c., there is a deficiency of atmospheric moisture.

At the back of the vineries is a range of offices 200 feet long, tool sheds, seed and store rooms, and with a spacious Mushroom house, all efficiently heated. Below the ground level is the boiler house, a huge excavation, lofty and roomy, in which the huge boilers are set that heat the several structures. Somewhere about 4 miles of piping are heated from these boilers, the remaining portion, $1\frac{1}{2}$ mile, being heated from the stoker of the winter garden. Mr. Shaw speaks highly of Weeks's tubular boiler for quick action and great power. All the smoke is conducted into a massive shaft in the rear of the buildings. Owing to the different levels and the arrangement of the houses there is quite a network of pipes, with valves innumerable, and it must be a work of time for a stranger to understand them and their workings; indeed, Mr. Shaw observes that had he not been employed as an under gardener when the work of erection was in progress, he must have experienced great difficulty in comprehending their complexity now.

All throughout the establishment good management, order, and excellent culture prevail; nothing appears to be neglected, nothing out of place—a result that certainly could not be achieved without the exercise of much forethought, great attention, and persevering industry, both on the part of the head and under gardeners, the former working with an object in view, and that is the very commendable one of endeavouring to the utmost of his power to have all things done well.

Behind the large field of glass referred to and higher up the hill is the kitchen garden, but at this altitude the crops are all late—early Peas only ready in August, and Dwarf Kidney Beans can only be depended on grown under glass. Westward is the pleasure grounds, a broad undulated lawn with belts of shrubs and a few flower beds, this reaching to and merging into a plantation which is the northern boundary of Mr. Holden's pleasure grounds.

In the front of the mansion, and across the road that separates it from the dale below, is another pleasure ground with lawns, water, raised shrub banks, and flowers, Pansies being quite at home, bright and cheerful. In close proximity are large and massive schools for the village and district, and in the rear of them Mr. Holden's stables, all very substantial, neat in design, and ornamental.

Altogether Oakworth House and its appurtenances is a wonderful place, made and owned by a wonderful man, who has graven his name deeply in the tablets of history, and by his mechanical skill, labour, and perseverance has at the same time benefited the nation and enriched himself. It is such men who have made England great by extending her commerce, and it is of such men that the nation is justly proud. Had I seen no other garden during my short tour I should have been well satisfied with my "week in Yorkshire" by having been accorded the privilege of inspecting the home and gardens of Isaac Holden.—A RAMBLER.

ANEMONE JAPONICA.—To enjoy the full beauty of both the pink and white forms of this valuable autumn flower we must have old-established plants growing in tolerably deep rich soil. I have a lot of clumps of both just now in full beauty; they are

upwards of 2 feet high, not with a loose and straggling air, but with clustering heads of flowers that are especially effective amidst the decay of so many summer plants.—L. O.

THE LATE MR. ARTHUR VEITCH.

WILL you kindly permit me, through the medium of your columns, to pay a grateful and sincere tribute to the memory of one who has, I deeply regret to hear, lately closed an honourable and useful career? Of the general business qualifications of the deceased gentleman it would be presumption on my part to speak. But as one who has experienced at his hand the utmost kindness and consideration in one particular branch of his business—namely, the dealing with men who seek the assistance of the firm in obtaining situations, I would fain say a few words. Doubtless there are hundreds of men who, like myself, will remember with thankful and grateful feelings the kindness they experienced from him under these circumstances. No matter how urgent other business might be, time was always found for attention to their claims, and they were always met in a kindly and congenial spirit. Many a gardener who entered his presence with head bowed and heart heavy, retired from it—solely by the influence of his cheering and kindly manner—in a better and happier frame of mind. I feel sure had this alone been the claim to grateful remembrance, his useful life had established on the horticultural world the name of Arthur Veitch would be long, lovingly, and gratefully remembered, and his early death sincerely deplored.—A. EAMES, *Heanton Satchville, Beaford, Devon.*

LAWN MOWERS.

I DARESAY many who are interested enough in mowing machines and read this short article will be surprised to see my signature attached to it, but the fact is I have been away from home since the end of June, and I have scarcely seen any flowers. In Scotland, with the exception of the famous *Tropæolum* with its lovely scarlet flowers, I saw nothing to interest me. The hotel gardens as a rule were filled with annuals and weeds, and I saw no flowers to make notes of. Here in Yorkshire I have not come across anything which I can possibly write upon, and so I am driven to the somewhat uncongenial subject of lawn mowers.

There are a great number of these, and in this letter I shall carefully abstain from causing offence to any one firm. I shall mention no maker's name, in order that I may not only avoid the charge of puffing any particular firm, but also to avoid injuring others whose machines may be equally good or even superior, although unknown to so humble an individual as myself. I shall therefore confine myself to a few hints as to the means whereby to keep the mowers in good working order, and also how those who may be without one, or dissatisfied with that they have, may know what new one to order. The most important part of the machine is the neck, in which the spindle or shaft of the knives revolves. In some of the older machines it was the practice of the makers to put a solid piece of iron with a hole bored in it wherewith to form the neck. I should strongly recommend all persons to abstain from buying a machine made in this way, because the dust and grit soon wears the hole larger and the spindle smaller, so that the latter shakes loose, and it is impossible to set the knives as required. It is now the custom to have a couple of brasses fitted into the framework, and as the hole wears these can be filed easily where they join, and by means of adjusting screws they can be set so as to fit closely round the spindle.

The distance of the knives from the cutting plate is next to be considered. The makers, I believe, tell you to set the knives so closely as to be able to cut thin paper when turning them round with the hand. The course, however, I pursue is to set them so as to just touch the plate all along. It is the practice of some gardeners when they find the machine very hard to push, to screw the knives back slightly from the plate, under the supposition that it will be easier to work thereby. This is a great mistake, as the grass wraps round the edge of the plate and is torn off the roots, and not cut as it ought to be, thereby forming a kind of brake, against which the knives have to rub at every revolution, and requiring necessarily increased efforts to push the machine along. The same result is produced when necks or brasses are worn. After setting the knives (I am speaking of a brand new machine which comes properly fixed from the maker), screw the brasses close up round the spindle—not so tight, however, as to "bind" it, but just so that you can shake very slightly the spindle in the necks. Next adjust the front rollers on wheels, so as to regulate the closeness you wish the grass cut. Each gardener will have his own views on this point. The closer the grass is cut, however, the harder will be the work, and *vice versa*. For

my own part I put the machine on to a stone step and adjust the rollers so that I can push the end of my forefinger under the bottom plate—that is, from one-quarter to three-eighths of an inch.

That is pretty nearly all that requires to be seen to in order to preserve the machine in good working condition. I take it for granted that it has been oiled before anyone commences to use it. The necks of the knife spindle will require oiling several times a day, owing to the speed at which they revolve. The other bearings will only need it once a day. If the cog wheels become clogged with grass or soil they should be cleaned or scraped with a pointed piece of iron, and an occasional general cleaning will be advantageous. If the grass wraps round the edge of the cutting plate, as alluded to above, the machine is not doing its work properly, and nothing blunts the knives sooner. These should be screwed close to the plate. It is, I believe, argued that there is less friction with a chain than with cog wheels. This, however, I consider altogether fallacious, as every inch of the chain has a pivot, and the dust, grass, and dirt which collects in the chain in my opinion causes far more friction than the cog wheels. There is also another reason—the pivots wear, and this lengthens the chain and requires the cog wheels on which it works to be moved back, and when further worn the chain does not fit on to the cogs but mounts on the top of them. When this happens a new chain must be procured. Again, in mowing slopes the chain is apt to slip off.

If I am asked what size of machines I recommend to be purchased, I reply that I find it difficult to answer, for so much depends upon how close and how often you mow the grass. If a boy can be obtained to pull the machine in front, I should recommend a 16-inch cutter; if a man alone is to work it, then a 12-inch is the best size. A man and boy twelve years old will do as much with one machine as two men will with a machine each. The number of knives in each mower varies considerably in different makes. Some have eight, revolving slowly as compared with others; some have three, and one, I believe, only two. My opinion is the fewer knives the better, if only they revolve sufficiently quickly. Thus the spindle holding two knives should make four times as many revolutions as that containing eight in passing over any given distance. I consider that the grass is cut more easily with a quick than with a slow travelling knife, particularly when the grass is long. How amusing it is for anyone who knows anything about lawn mowers to read the advertisement that so often appears, "will cut long or short grass, wet or dry, &c." Now it is possible when the machine is new and in tiptop condition to do this, but when the first keen sharpness is worn off will it do so? As to long grass, decidedly no; as to wet grass, not satisfactorily, for the machine becomes clogged in all directions, the grass cannot fly into the box, but drops back into the knives. The word "box" reminds me that the question may be asked, Do you advise using one or not? My answer is, As a rule certainly use one, and for this reason: first, if there be any Daisies in flower and the decapitated heads be left on the ground, you will have a bountiful crop of them next year; and secondly, if wet or damp and the machine delivers the grass in front, you will have your machine clogged, and you will continue to chop the same grass over and over again. When, however, the grass is dry and short, and there are no Daisies, you may take off the box, and you will find the mower run more easily.

Before concluding I would advise all those whose machines are out of order not to consider that it is the fault of the particular make, and so cast it aside for a different machine at a cost of some pounds; but, on the contrary, let them see if by adopting these few hints, which I have endeavoured to make as plain as possible, they cannot make their old servant do its work properly.—WYLD SAVAGE.

THE STAPLEFORD ROSES.

"D., Deal," on page 299 condemns these Roses in strong terms, but he does not say what is amiss with them, except that he has not seen many at the shows. There is time enough for that yet; but Rose-growers are not all exhibitors—only a fraction of them indeed, and it struck the writer that the Stapleford Roses would form a very valuable addition to our Rose gardens. To talk of any new plant "collapsing" almost as soon as the stock has left the hands of the trade is rather premature. May I ask "D., Deal," to tell us if the said Roses refuse to grow or to flower, or if, in fact, the descriptions given of them by several writers, including Mr. Bennet, are incorrect? Your correspondent says, "If there are any who have found these Roses different to what I and all those with whom I have spoken with have, I hope they will make their opinions known;" but he has forgotten to specify their faults himself. As a set-off against the remark of the "head of a

well-known London firm" the present writer was told by another well-known "head" that he considered these Roses a valuable addition; "but," said he, "Mr. Bennet has stolen a march on some of our Rose-growers, and his Roses are viewed with some hostility by them."—WILD ROSE.

GRIZZLY BOURJASSOTTE FIG.

THIS is the most delicious of Figs, and it has well maintained its high character this year. A small tree trained upon a south wall had a full crop of fruit, almost as abundant as the Brown Turkey, and infinitely superior to it in flavour. The fruit is handsome, of medium size, of a curious colour which I see is termed chocolate in the "Fruit Manual," very soft and apt to shrivel slightly, but not to crack as it ripens. It is so rich as almost to clog the palate with its sweetness, and in this respect surpasses every other Fig I have tasted. The tree is moderately vigorous, somewhat apt to lose a few inches of the tips of the leading shoots by frost, but in other respects it is quite hardy.—EDWARD LUCKHURST.



THE following letter has been sent to us for publication by "AN ARTIST"—"Under the heading of 'OUR ILLUSTRATIONS,' I observe that the *Gardeners' Chronicle* of the 23rd ult. delivered a brief lecture on journalistic honour, in which it was distinctly implied, if not actually stated, that you had mutilated the block of *Rubus rosafolius* var. *coronarius* that had been supplied to you from Messrs. Veitch & Sons. I wish to point out, not only that this was a most unjust accusation, but that the directors of your contemporary had the means of knowing it was so, as the engraving had appeared in precisely the same condition some time before you published it: that charge therefore fails totally. On the question of borrowing and lending blocks, let us see how rigidly the Editors of the *Gardeners' Chronicle* have adhered to the honourable rule of acknowledging the favours of those to whom they are indebted. From the beginning of last June to the present time at least twelve large borrowed nurserymen's blocks have appeared in the *Chronicle*, five of which are not acknowledged and two are wrongly named. On June the 12th, 1880, page 745, Mr. Bull's block of *Dieffenbachia regina* appears under the name of *Dracaena regina* without the slightest acknowledgment of indebtedness to the lender. On June the 19th, 1880, pages 776, 777, and 781 are three borrowed blocks of *Cypripediums*, one being wrongly named. Two of these blocks are acknowledged as if the other was the *Chronicle's* own property, whereas all three were Messrs. Veitch's property. On July 10th, 1880, pages 40-41 are illustrations of four of Mr. B. S. Williams's new *Nepenthes* on two blocks. The descriptive matter is taken from Mr. Williams's catalogue, but there is not a word to the effect that the blocks were borrowed. Also on August 28th, 1880, page 278, is an illustration of some new *Coleuses* which are stated to represent some of Mr. Bull's varieties, but there is no mention that the block was Mr. Bull's too. If you refer to the numbers quoted you will find that what I have stated is correct, and the *Chronicle's* future complaints on a subject of this nature can have no weight whatever."

[It is not our custom to search for faults and inconsistencies in the columns of our contemporaries, as errors from various causes are liable to creep into all journals; but in this instance we have verified our correspondent's statements, and under the peculiar circumstances of the case we feel justified in publishing his letter.—EDS.]

— A GOOD deal has been written on the SHANKING OF GRAPES lately, and various theories have been advanced respecting

the cause of the evil. Deficient root-action, overcropping, hard forcing, and a fungus attack have all had their advocates. There is, however, a case of Grape-shanking at Chiswick that does not appear to be directly traceable to any of those causes, yet, notwithstanding, one or more of them may exist even if they are not plainly visible. This instance of shanking is in the middle of as grand a house of young Vines as is probably to be seen in England. The wood is as stout, strong, and apparently as satisfactory as can be desired; the foliage is of remarkable texture, as thick as the thickest Fig leaves that were ever grown; the crop is light—from two to four bunches on a Vine strong enough to bear three times the quantity. The varieties are Gros Colman and Alicante. Only about the centre of a house 200 feet long are there any signs of shanking, and the berries in the house are generally magnificent in size and colour. There is apparently no debility here, no excessive luxuriance, no forcing, and apparently no lack of root-action; yet the Grapes on a few of the Vines shank. Who can explain this? Does the fungus theory apply?

— A KIRKCUDBRIGHT correspondent of the "Entomologist" referring to WASPS *v.* SCALE ON FRUIT TREES, states that even the oldest inhabitant cannot remember such swarms of wasps as have been observed this season. In one instance he counted along an avenue of 300 yards nearly seventy nests, and in the woods it was scarcely safe to quit the trodden paths. But as a set-off, he remarks that the wasps have helped to clear the fruit trees of "mussel scale," and he considers that they have destroyed quantities of aphides and many flies.

— "W. K." WRITES—"In the Begonia House at Kew may now be seen some fine plants of *BREDIA HIRSUTA*. The plants are about a foot high and nearly as much in diameter, grown in 48-size pots. The flowers are light rose, contrasting admirably with the dark brown foliage. It occurred to me at the time I saw it that it would make a very desirable plant for decorative purposes. This appears to be one of the many *Melastomaceous* plants that is much neglected at the present day. By its free flowering qualities and robust growth, one would be inclined to imagine that under liberal treatment it would well repay all trouble bestowed upon it."

— *Nature* states that "Mr. McGibbon, who has been many years Superintendent of the BOTANIC GARDEN, CAPE TOWN, SOUTH AFRICA, retires on a pension of £150 a year. A movement is on foot to remove the Gardens from their present contracted site in Cape Town itself, and to create in the neighbourhood of the city a botanical establishment more worthy of the seat of South African Government. As a first step the appointment of Director has been offered to the well-known Cape botanist, Professor MacOwen of Gill College, Somerset East. It is, however, doubtful whether the state of his health will allow of his undertaking it."

— A CORRESPONDENT, referring to the value of AUTUMN-SOWN SWEET PEAS, strongly advises everybody to sow a row or two during the present month. They are not hurt by frost, and the early blossoms are much valued as cut flowers. If possible sow one row near a south wall to accelerate growth in spring, and thereby gain a week in the opening of the flowers.

— "No one" writes an "OLD GROWER," "can visit Messrs. Veitch's nursery without observing the value of SMALL POTS FOR ORCHIDS. The growth of *Dendrobiums* is wonderful. One plant of *D. nobile*, growing in an ordinary 6-inch flower pot saucer half filled with crocks, has produced thirty growths this year, some of them 2 feet in length and all exceptionally vigorous. *Phalænopsis Schilleriana*, *amabilis*, and others are similarly luxuriant both in very small pots and saucers. A great number of Orchids are undeniably overpotted and consequently unhealthy, and a removal

from large into small pots would effect a great improvement in the condition of many plants that are not thriving satisfactorily."

— REFERRING to the statement which we republished from the *Irish Farmers' Gazette*, that a LORD PALMERSTON PEACH had been gathered 11 inches in circumference, and weighing 17 ozs., Mr. F. Prothero of Malpas Gardens, St. Thomas, Exeter, informs us that he has gathered a fruit of this variety 11 $\frac{3}{4}$ inches in circumference, and it only weighed 13 ozs. He has also grown fruit of Lady Palmerston 10 $\frac{1}{4}$ inches in circumference, the trees of both varieties being grown against a wall in the open air.

— MR. WM. SUTHERLAND, late manager to Messrs. R. P. Ker & Sons, Aigburth Nurseries, and to Messrs. Ireland and Thomson, Craigleith Nurseries, Edinburgh, has been appointed manager to Mr. J. Cowan, The Garston Vineyard, Liverpool.

— WE learn from the *Banffshire Journal* that Mr. STEPHEN OSBORN, late gardener and bailiff to the Earl of Effingham, Tusmore, Bicester, has been appointed gardener and bailiff to the Earl of Fife, Upper Sheen House, Mortlake, Surrey.

— AN attractive herbaceous plant that still continues flowering in the borders is CUPHEA SILENIOIDES VAR. ZAMPARI. It is 3 or 4 feet in height, and bears the large rich purple peculiarly formed flowers near the upper portion of the branches. This is the best of the varieties of Cuphea silenoides in showiness, and succeeds admirably in any light rich soil, the flowers being produced throughout the greater part of the summer and autumn.

— WE are requested to state that "THE AMIES CHEMICAL MANURE COMPANY" have removed from No. 79, Mark Lane, to more extensive and convenient offices at No. 75, Mark Lane, London, E.C.

— WE learn from the *Gardeners' Magazine* that 178 varieties of Potatoes were represented at the recent INTERNATIONAL POTATO SHOW. The number of dishes staged of the chief exhibition varieties were as follow:—Magnum Bonum, 143; Schoolmaster, 108; International, 94; Grampian, 85; Vicar of Laleham, 71; Snowflake, 60; Trophy, 58; Porter's Excelsior, 56; Woodstock Kidney, 55; Triumph, 51; Blanchard, 43; Red Emperor, 40; Manhattan, 35; Early Rose, 30; Covent Garden Perfection, 27; Early Vermont, 26; Climax, 25; Pride of America, 24; Brownell's Superior, 23; Rector of Woodstock, 21; Bresee's Peerless and Breadfruit, 20 each; Bountiful and Pride of Ontario, 18 each; Late Rose, Wonderful, and Mammoth Pearl, 17 each. The following well-known and useful varieties were represented by a few dishes—namely, York Regent, 2; Myatt's Prolific Ashleaf, 15; Victoria, 5; White Don, 1; and Lapstone, 7; while 57 varieties were represented by single dishes only.

— THE Irish print which we were obliged to take to task a fortnight ago for PRESS PIRACY, has confessed its fault, tendered its "most ample apology" to its copier, and thereupon, as might be expected, it sets to roundly abusing us, who are the only sufferers from its misconduct. The Editor of the print in question is an old offender, and we presume the consciousness of the fact vexes him. Last December the following paragraph appeared in the "Gardener":—

"We would recommend the Irish 'Gardeners' Record' to the attentive perusal of the horticultural press generally—it is worth watching. It is difficult to feel anything but commiseration and sympathy for a journal that has to pack its pages promiscuously with paragraphs about such subjects as 'Holloway's Pills,' which the 'Record' states, 'are as mild as they are efficacious.' This statement is not given as an advertisement, and so we expect its Editor has tried them. There is no harm, of course, in a grateful acknowledgment of this kind; but it is different when the 'Record' appropriates whole chapters from its contemporaries without acknowledgment, simply because it appreciates them as it does the pills. We observe that it has transferred that chapter of the 'Squire's Gardener's' on 'Mixed Flower-Gardening,' from 'The Gardener' to its own pages without as much as 'By'r leave, sir.' Robbing the ample stores of 'The Gardener' is perhaps not so heinous an offence; but what is anyone to think of the same paper abstracting matter in the same

way from the pages of its humble contemporary 'The Villa Gardener?' In the same number of the 'Record' is an unacknowledged article on 'Epidendrums,' which appeared in the 'V. G.' of August last. There are also articles on one or two other subjects we should like to know the parentage of."

Again in February of the present year it was observed in the same paper—

"Since we recommended the Irish 'Gardeners' Record' to the attentive perusal of the horticultural press, that paper has been wonderfully profuse in its acknowledgments of its sources of information, and its contents now show to what extent such prints are indebted to their contemporaries for their matter, one might almost say for their existence. The horticultural portion of the 'Record' consists of about nine pages of large type, and that space in the number before us contains no fewer than twelve borrowed articles and extracts, and these, it need hardly be said, form the pith of the paper."

WINDOW GARDENING.

AT page 305 "B. T." reminds us that the season for damping-off is at hand, and gives some advice as to saving Primulas from its effects. That his plan is effectual I readily admit, but it is possible that some who cannot carry out his instructions may grow Primulas as well as those who do, and that simply by the exercise of additional discretion and care at critical moments, thereby saving a goodly item in expenditure. There has been unfortunately of late too much credit given for results without regarding the costs. I know that in the horticultural world it is difficult to judge how much credit actually belongs to a man, how much to natural and other advantages, and how much to accident. But gardeners themselves ought to be able to judge of their own achievements in an unbiased way. I believe many of the best of them do this, and that although outsiders and employers may praise and even flatter, there is a meek inward feeling that the result, brilliant as it may be, is not worth the cost.

To have Primulas 18 inches across in February or March after growing them all winter in a temperature of 50° to 55° may be creditable, but it is nothing extraordinary, as I have many of this season's plants as large as that already, which have been simply grown in cold frames, and which would in a cottage window or an airy greenhouse flower through the greater part of the autumn and winter. Let it be understood that I do not want to boast of my own doings—indeed they are not mine, for I have never either potted or watered one of the plants—and would prefer not mentioning them except for the sake of illustration, not to disparage the achievements of "B. T.," which may be much more creditable than I imagine; but I want to see the growing of such simple and beautiful flowers as Primulas, Begonias, and Cyclamens become more popular and take the place to a certain extent of the Pelargoniums one everywhere sees in the cottage windows. I ought not to say much against Pelargoniums, as the cottages in this neighbourhood are greatly enlivened by their presence, and they make a gorgeous display for the benefit of the passer-by. But what about the background? It is simple ugliness itself, and to produce it the inmates consent to sit in semi-darkness.

There are many plants of easy growth which are naturally of symmetrical habit, such as the three I have mentioned among flowering plants, and Ferns, Palms, Dracænas, and Ficus elastica among foliage plants, to which may be added others which, if not quite symmetrical, have at least some beauty on both sides, as Richardia æthiopica and Vallota purpurea. Two or three of any of these plants will furnish a window without obstructing more light than a narrow blind, for which generally they may be substituted, and will give pleasure both to the traveller and the resident. Once let the cottagers know that the most beautiful of Tuberous Begonias may be easily had flowering in their windows through the summer, and that one of the best of all winter flowers, the Cyclamen, will take the same position in winter, I should expect to see a rapid change in window gardening. I advise, then, that when there is a choice of doing the same thing by extra care as by spending a comparatively large amount of money, we should to a great extent recommend the former method, for care begets love.—WM. TAYLOR.

HEAVILY CROPPED VINES.

ONE of the greatest and most common mistakes made in Grape-growing, and which has often been commented on in this Journal, is overcropping. This heavy cropping, however, may under certain conditions be repeated with impunity, as some of the most heavily cropped Vines that I have yet seen, and which I have every reason to believe have been equally as heavily cropped in previous years—and still remain vigorous—are those in two fine span-roofed houses at The Deodars, Mcopham, Kent. Mr. Phillips,

the practical gardener in charge, evidently, however, knows what he is about, being well aware that the Vines could not long stand such a heavy strain upon their resources without extraordinary compensation being given at the roots.

The borders are inside of the house, and are composed almost entirely of strong loam, and to these are given liberal top-dressings of strong unexhausted manure, and frequent heavy waterings varied with strong liquid manure, the latter not merely during the times the fruit is being perfected, but after it is all cut, as at this time the root-action is still going briskly on, and the Vines are thus enabled to feed on and to assimilate the rich supplies of food frequently placed at their disposal. It is this knowledge of their recuperative power that justifies Mr. Phillips in thus heavily cropping his Vines; and there is no reason why others may not also crop their Vines heavily, provided they are well established and receive similarly liberal treatment.

My advice—far from being original—to all, whether their Vines have been heavily or lightly cropped, is to give them abundance of moisture at the roots after the fruit is cut till the foliage has changed; varied, in the case of heavily cropped Vines, with strong liquid manure. This has the effect of “plumping” up the buds, and also insures a good start being made the following season. Of course, where the borders are outside, in most instances the autumn rains will be found sufficient. It is the inside borders that are most frequently neglected after the fruit is cut.—W. IGGULDEN.

PELLIONIA DAVEAUANA.

ON visiting Kew a few days since I was much struck with the beauty of this plant. It is a native of Cochin China, and by its pendant habit is admirably adapted for basket work for the greenhouse. The leaves much resemble *Tradescantia zebrina* in shape, but are much more handsome. The centre of the leaves is light green, with a broad band round the margin of dark brown or chocolate. At first sight it would easily be mistaken for one of the fine-foliaged *Begonias*, but it is quite distinct from that genus. It is growing in a shallow pan suspended from the roof, and judging by appearance the treatment it receives seems to suit it well.—W. K.

IRISES.—No. 12.

STILL continuing the consideration of the great Apogon division of Irises we come to the three remaining groups, one of which only contains a single species, and the others are not large, but they comprise some of the most beautiful and most interesting of all the beardless forms. Here it may be remarked that it is one of the very agreeable peculiarities of this genus that large numbers of the species are individually marked by such qualities of beauty that all comparative terms of excellence are useless, as each one seems in itself to stand unrivalled. Some particular gracefulness of form or striking combination of tints characterises all the most noteworthy forms. The groups now to be described are chiefly distinguished by the possession of ensiform leaves, and in addition certain minor peculiarities of the perianth aid in the classification of the species. The first group consists of a single dwarf species with sword-shaped leaves named *I. maculata*; it is not marked by any special excellence, and is, I believe, not in cultivation at present. Then follow the two groups of caulescent forms—one with very small inner perianth divisions, and the other with falls and standards spreading, and in some instances nearly of equal size. The most attractive of the species included in these two sections I will now refer to without following the precise order of their arrangement.

By far the most interesting, historically at least, is the native species *I. Pseud-acorus*, the yellow Iris or Fleur de Luce, of which so much has been written. This is one of the only two forms found wild in the British Islands, and is distinguished by its large yellow flowers and its frequenting the margins of lakes or similar moist localities. When growing luxuriantly, as it does in a suitable position, and bearing the fine yellow flowers in abundance, its beauty is of no mean order, and in many gardens it forms, where judiciously employed, a beautiful margin to artificial lakes. Gerarde wrote concerning it in his quaint manner—“The yellow Flag prospereth well in moist meadows, and in the borders of rivers, ponds, and standing lakes; and although it be a water plant of Nature, yet being planted in gardens it prospereth well.” It must have been the remembrance of some happy spot where it was in its best condition that prompted Charlotte Smith to write—

“Amid its waving swords, in flaming gold
The Iris towers.”

Yet it is chiefly in the historical memories connected with Iris

Pseud-acorus that interest centres. The Fleur de Luce, Fleur de Lis, or Floure de Luce everyone has heard or read of as the blazon that was chosen by King Louis VII. of France when he commenced his crusading expedition, and from which circumstance it was designated Fleur de Louis, ultimately transformed into the unmeaning name it now bears. All, too, have heard how our English Edward III. adopted the Fleur de Lis after the battle of Cressy and incorporated it with the Royal arms. These are facts so well known as scarcely to bear repeating except in the way of incidental reference. But that is only the pleasant part of the history of the Fleur de Luce. It is to the French Revolution that we must look for the counterpart of that history, when the passions of an infuriate and ignorant mob were directed to the total destruction of every emblem of royalty. Then not only was the harmless insignia torn down and obliterated wherever it was present, but the crime of wearing or preserving any article marked with it was punished with death. Even in the present advanced times this spirit still seems to prevail, for not many months since it was announced that the Municipal Council of Paris proposed to erase the Fleur de Lis from all public buildings. So much for what may be termed the romance of this interesting species of Iris, which, though less gorgeous in the colouring of the flowers than some of its more favoured relatives, it yet surpasses all in its suggestiveness to a contemplative mind. As regards the properties of the plant little need be said. The leaves possess a peculiar odour as of rancid bacon, but less powerfully than *I. foetidissima*, while the juice of the root is very acrid and is said to be a strong aperient. A variety with finely variegated foliage is in cultivation. The leaves are broadly margined with yellow, the flowers being large and similar to the type in colour and form. Both of this and the species the colour of the flowers sometimes varies to nearly or quite white.

I. ochroleuca is a stately species, somewhat resembling *I. Pseud-acorus*, but rather more attractive. The stems rise to the height of 3 or 4 feet, and bear very large yellowish flowers marked with white. A still later variety is known by the appropriate name of *gigantea*, which reaches the height of 6 feet, the flowers being pure white. Both these produce their flowers comparatively late in the summer, and are worth growing, as they succeed in any moist position. The typical species is well figured in the first volume of the “Botanical Magazine.” *I. Monnieri* is a species from Crete, allied to the last two but with paler flowers; it is very rare, being found in few collections. Its chief recommendation is the lateness of the flowering, particularly in the neighbourhood of London. *I. versicolor*, a native of the United States, especially in Virginia, Maryland, and Pennsylvania, has been some time in this country, and is justly admired for its beauty. The stem has a peculiar crook or elbow, which is a distinctive mark of the species. The flowers are produced in June; they are of medium size, and have small pinkish or flesh-coloured standards, white stigmas, and rounded rich purple falls veined with a darker tint. It is extremely attractive, and like many others thrives freely in almost any soil and position except the driest. Several varieties are in cultivation, the best of which are *Violacea* with violet-coloured falls and standards, the former being of the deepest shade. *Purpurea* has rich purple falls and rosy white standards. *Atrocærulea* has violet standards and fine blue falls; while *Pallida*, as its name implies, has light-coloured flowers, the predominating tint being lavender. *I. virginica* is said to have been cultivated in 1758 by Phillip Miller, and it therefore takes rank among the old inhabitants of our gardens. It is a pretty species and appears especially happy in a moist position, but it must not be a stagnant moisture, as that is destructive to this and all other similar forms in cultivation. Michaux found it abounding in the marshy districts of Virginia, which sufficiently indicates its requirements; it flowers in June, the falls being of a deep clear purple hue beautifully veined, and the standards bluish. The varieties *Columnæ*, *Hansoni*, and *pulchella* are deserving of a place in gardens; they chiefly differ from the type in their light or dark shades of purple, blue, and lavender. *I. spuria* is an old and well-known species with handsome flowers, the falls of which are rich purple, with blue upright standards. It was known to Parkinson, who describes it under the name of the “Greater blew Floure de Luce with narrow leaves.” The specific name was given by Linnæus from its not furnishing any decided characters to aid in its determination. About half a dozen varieties are grown, all very beautiful, the best being *cærulea*, *ilacina*, *halophylla*, *pallida*, and *desertorum*, which vary from purple to lavender, yellow, and white. It does not require any special treatment. In concluding this section *Iris foetidissima*, the Stinking Gladdon, may be noticed as the only other British species. It does not possess any particular attractions, but there is a form with finely variegated leaves which is useful as a decorative plant.

Both the popular and the botanical names of the species refer to the odour of the leaves, which has been compared, as in *I. Pseud-acorus*, to rancid bacon, or by some has been thought to

resemble roast beef and Garlic, and it has from that been occasionally termed the Roast Beef Plant.

In the same group as *I. Kämpferi* (referred to on page 215) are



Fig. 61.—IRIS LONGIPETALA.

two other species that deserve notice—namely, *I. longipetala* (represented in the annexed engraving), and *I. fulva*. *I. longi-*

petala is one of the two beautiful Irises found by Mr. Douglas during the Beechey expedition, and like *I. Douglasiana*, to which

I have previously referred, the flowers are of great size and substance. The falls, as the specific name implies, are very long, finely striped with lilac, the streaks radiating from the centre on a lighter ground; the standards and stigmas are of a purplish blue tint. It is one of the finest of the Irises, but is by no means well known in gardens at present, though it is included in the large collection of choice hardy plants grown by Mr. Ware at Tottenham. I have not had an opportunity of obtaining flowers for sketching, and the engraving has been prepared from an excellent coloured figure of the species in the "Botanical Magazine," plate 5298.

I. fulva is interesting from its resemblance to *Hemerocallis fulva* both in shape and colour, the falls and standards very nearly equal in size and spreading. It is very distinct in general appearance from all other Irises of the beardless section, and is the last in that division that calls for special notice.—L. CASTLE.

ROSA RUGOSA.

THIS is popularly called the Japanese Rose, and a charming shrub it makes. It should never be budded on standards, but upon dwarf Manetti stocks, so as to acquire a true globular bush form, which it soon does, and is then so ornamental that everybody admires it. Many times have I found visitors warmly discussing its charms this season. Each one appears to have discovered some especial merit. The dense spreading yet compact habit of growth; the handsome dark evergreen foliage, so stout in texture, and so especially ornamental in winter; the abundance of its flowers, and their delicious perfume; and above all just now the numerous clusters of bright red hips nestling among the foliage, the brightness of every one of them most charmingly refined by the exquisite bloom with which it is covered.—E. L. O.

CHAPTERS ON INSECTS FOR GARDENERS.—No. 12.

NEW SERIES.

PROCEEDING with our notice of the predaceous beetles in the family Adephaga, we should observe that some of these are unjustly suspected of doing mischief. During the past summer we received specimens of a small *Carabus*, or ground beetle, to which one gardener gives the name of "black jack," as others perhaps may also, and this was thought to have caused damage to a crop of Strawberries; but inquiry into the case rendered it evident that the offenders had been of another kind, probably a small species of mollusc, and upon these the beetles had been preying. Some colour to the mistake, in this and similar instances, is given by the fact that the actual depredators have often disappeared through the agency of some foe or parasite before the injury they have done is remarked by the gardener, and amongst parasite insects there are several that attack both our friends and our enemies; for the active flies of the genus *Tachina*, the larvæ of which help to diminish the number of caterpillars, especially that of the Gooseberry grub, and which sometimes attack the destructive weevils, are also found upon those useful beetles the *Carabi*.

These *Carabi*, however, occasionally hunt their near relatives. Thus *C. monilis* seeks out a smaller beetle, which is gifted with a defensive power, from which it has received the name of *Brachinus expulsores*, or the Bombardier. Their usual habitat is damp places, where the *Carabus* seeks for them, and should one of these discover a Bombardier forthwith a stern chase begins. The smaller beetle is less agile and would soon fall a prey to its assailant; but finding it is losing ground it pauses and fires off from its tail a mimic artillery—a few drops of fluid which volatilises in the air like a tiny puff of smoke. The hunting insect pauses, and frequently stops in its career; if, however, it should recommence the pursuit the *Brachinus* can fire again and yet again. But for all that it is possible that the *Carabi* do succeed in capturing and killing some of these beetles. Many of these ground beetles keep themselves concealed through the day, though some of them may be seen traversing the beds, or crossing the paths, intent upon their particular prey, such as the greenish-coppery *C. cancellatus*, or the larger violet-coloured *C. violaceus*. A very useful species is unfortunately scarce in Britain; this is *C. auratus*, which seeks out the female cockchafer when crouching on the ground with a view to deposit a batch of eggs. The active *Carabus* having laid hold of the slow-moving cockchafer kills it and tears it asunder, so that by this means a check is given to the increase of that species. The Rose beetle is also captured by this *Carabus*. In the larval condition the beetles of this family live under moss in trunks of trees or similar situations, feeding on other insects. The French have, for some time past, been awake to the advantage of encouraging such beetles in gardens,

and have even taken measures for introducing colonies of them where they are scarce.

The Sunshiners form another family amongst the Adephaga. Most of these beetles are green or greenish blue, rapid in their movements, and destroyers of smaller species. They belong to the genera *Amara* and *Pæcilus*. A curious superstition prevails in some counties that it is unlucky to kill a Sun Beetle; it is certainly undesirable to diminish the number of insects that are always harmless, and mostly helpful to the successful culture of gardens or fields. Some of them are especially partial to the margins of streams, marshes, and the seashore. Usually they are so constituted as to be able to master insects larger than themselves, though they frequently prefer small fry. These Sunshiners have sundry relatives of a sooty or pitchy hue, which are not uncommon about gardens or outhouses, and they are more inclined to deeds of darkness, seldom showing themselves by daylight. We may mention two of these in passing—*Pristonychus terriicola*, a beetle of elegant shape, with faint lines upon the bluish-black wing-cases, and which feeds upon various insects indoors or without; and *P. leucophthalmus*, of a deeper black, having long slender palpi, and wing-cases covered with tiny punctures. Both these are about three-quarters of an inch in length, and the latter is notable because it is reported to hunt and kill that objectionable insect the cockroach.

The second division of these predaceous beetles is suitably called Hydradephaga, containing a part of the water beetles, and at once distinguishable from their land brethren by the long flattened hind legs, fringed with hairs also, and which act famously as oars. In ravenous habits these surpass the Adephaga; perhaps their life under the water stimulates the digestive process! The Gyrini or whirligig beetles (a name that is oddly printed in some books "whirlwig") are to be found at one time beneath the water and at another running rapidly upon its surface, where they capture the little beetles and flies that may fall into the water. The great water beetle (*Dytiscus marginalis*) is a powerful swimmer, and it does not limit itself to insects and molluscs, for it has been taken when attacking fish. Juvenile naturalists occasionally haul up these beetles with the intent of placing them in an aquarium, and while grasping one in such a way as to avoid the jaws, they are surprised to discover that the beetle, by backing when it is in the hand, can inflict a wound with a sharp process on the under side of the body. But, from their destructive habits, these and similar water beetles are unfit tenants of any aquarium intended to be a home for other living creatures. If it be wished to observe them, the only way is to give them a glass vessel to themselves, when they must be freely supplied with other insects or fragments of meat. In ponds and narrow streams the Dytici may be often seen coming to the surface, where from time to time they elevate the abdomen, expelling air in that way, or receiving a fresh supply, which is carried about in a hollow under the wing-cases. At night these beetles take excursions through the air, not unfrequently picking up insects on the road as they go from one pond or streamlet to another. The larvæ of *D. marginalis* has sometimes been called the water tiger. It is a slender but very ferocious creature, armed with a pair of hollow mandibles, which act in an almost similar manner to the fangs of a snake. Its growth is, however, gradual, and during most of its life it hides under the mud, though obliged to rise at certain periods to breathe.

The other important group in the Hydradephaga is represented by the Gyrini, to which allusion has been made. Quite a contrast in size are these when placed beside the huge Dytici, and their movements on the surface are so pleasing to look at, especially when the sun shines upon their polished bodies, that a colony of them is an agreeable addition to a pond in the parterre; only beware of handling one of them should the insect be the common whirligig (*G. natator*), for this species has the faculty of emitting a defensive liquid of an odour not by any means fragrant. *G. natator* is blue-black in colour with a reddish mouth, and about the size of a large ladybird; each it may be observed, as it glides to and fro, or suddenly dives beneath the water, to carry at its tail a small bubble of air. The Gyrini have much shorter antennæ than the rest of the water beetles, but the eyes in the genus are formed in a very unusual manner. Each eye is divided by the protruding portion of the head that bears the antennæ, and one part of the eye is directed upwards, the other sideways, having a comical appearance under a magnifier; this arrangement being suited to the usual habits of these insects.—J. R. S. C.

DIGESTION IN PLANTS.—Dr. Lawson Tait has recently investigated afresh the digestive principle of plants. While he has obtained complete proof of a digestive process in *Cephalotus*, *Nepenthes*, *Dionæa*, and the *Droseraceæ*, he entirely failed with *Sarracenia* and *Darlingtonia*. The fluid separated from *Drosera*

binata he found to contain two substances, to which he gives the names "droserin" and "azerin." Dr. Tait confirms Sir J. D. Hooker's statement that the fluid removed from the living pitcher of *Nepenthes* into a glass vessel does not digest. A series of experiments led him to the conclusion that the acid must resemble lactic acid, at least in some of its properties. The glands in the pitchers of *Nepenthes* he states to be quite analogous to the peptic follicles of the human stomach, and when the process of digestion is conducted with albumen the products are exactly the same as when pepsine is engaged. The results give the same reactions with reagents, especially the characteristic violet with oxide of copper and potash, and there can be no doubt that they are peptones.—(*Nature*.)

THE POTATO DISEASE.

IN a previous communication I stated that the disease was due to a rupture of some of the organs by a glut of rain during some period of the plant's growth, and that this was capable of proof. I now give some methods of proof convincing to my mind. 1, After heavy rains attended by a muggy densely saturated atmosphere, examine microscopically all the parts of the plant at any stage of its growth, and many of the cells will be found ruptured. 2, Gather from reliable sources the results of growing Potatoes under glass, and where they are free from excessive moisture, and the evidence will show the absence of disease. 3, Securely fix a large light over a portion of your patch of Potatoes, so that the surrounding conditions of growth shall be felt beneath, but that the rain shall be thrown on those growing near; and if the season be at all wet the sheltered Potatoes will be sound while those receiving the extra rain will be diseased.

The state of the Potato crops this season is another proof, at least to me. This year the heaviest rainfall has been somewhat limited to the western and midland counties, and, so far as I know, in these counties only have the Potato crops suffered severely, particularly so where the land is heavy and ill-drained. A friend in Fifeshire tells me his crops are very heavy and quite sound. The rainfall there in June, July, and August has been considerably less than in the Vale of Gloucester where the disease prevails largely. Similar experiences induce me to suggest that you invite qualified correspondents in selected localities to give you the rainfall from May to August inclusive, and the state of the Potato crops in their districts. The evidence of these facts will most certainly prove that where an excessive rainfall has occurred, there the disease has prevailed—modified of course by soil, drainage, varieties, and culture.

These facts have convinced me that wet seasons and not fungus cause the disease. It may well be that what is superabundant moisture to the Potato is a condition suitable to the growth of fungus; what is disease to the one is vigorous health to the other, but still excessive moisture is the cause of the disease, and fungus is a result.

It will be interesting to know if others have followed this line of thought and experiment, and with what results. The importance of the subject is worth the attention of the Meteorological Office and the authorities of Kew Gardens. I do not think we can conquer the disease, because we cannot order the seasons, but we can do much to limit its ravages by cultural directions. Those which I have successfully practised shall be sent to you for another issue.—AN INTERLOPER.

I DO NOT know whether your readers are tired of this subject, but I am like the "Song of the Brook," I could go on for ever. It is a subject which interests me and to which I have devoted considerable time. I see "LINCOLNSHIRE POTATO GROWER" says that I have not contradicted his statement that nine-tenths of my book is composed of the experience of others. With regard to this, some years ago I wrote a series of articles in this Journal, in which I treated of the disease from a purely theoretical point of view without referring to the writings of others at all. Now those articles were criticised, and were found fault with because I had not referred to the writings of others. So much for critics. At the same time I admit that my former critic would have been right if it had been a general treatise on the disease, which the book is; and for anyone to write a treatise of that nature entirely from his own experience, and without referring to the writings of others, in my opinion would be a great mistake, and the book would not be worth reading. It would be like the play of Hamlet with Hamlet left out.

Then, again, he says it is not a practical book at all. With regard to this I entirely differ from him. It is full of practical information from beginning to end. Again he says, "Pulling the tops off has been of great benefit, and this is not mentioned," but

on referring to page 57 and reading it over carefully anyone may see that it is.

Then again he says, "Neither is the theoretical plan for the extinction of the disease of any practical value, at least according to the authority of Mr. Worthington Smith." Oh yes! we are to sit back in our chairs, fold our arms, and look complacently on as we have been doing for the last thirty-five years! When railways were first invented, letters used to be written by scientific men to various journals saying that it was impossible for any railway train to travel at the rate of sixty miles an hour in consequence of the resistance offered by the pressure of the atmosphere; but that we all know was found to be erroneous. Now let us examine some of the statements quoted from Mr. Smith:—"If Potatoes were taken into an island in the middle of the South Pacific, or transported for miles upwards into the air, or submerged for years in a river, they would yet be liable to contamination from the *Peronospora*, for the spores of the fungus are everywhere. Spores are present everywhere, and can no doubt be carried through the air across a sea or ocean as readily as over a hedge. Spores everywhere sail with the wind and at the same speed. Nothing is better known than the descent of spores, pollen, and other minute organisms on to ships in mid ocean." The spores of the fungus do spread about there is no doubt, but the remarks of Mr. Smith are much too sweeping. Instead of an island in the South Pacific let us fix on one in the South Atlantic—viz., Tristan d'Acunha. This island, as some of your readers know, is about half way between the Cape of Good Hope and the Argentine Republic in South America. Now Potatoes have been grown on this island for more than twenty years without any sign of disease whatever, so that it is very evident they are safe from the spores notwithstanding what Mr. Smith says; and with regard to the Isle of Man, in my opinion the result would be the same if the island were once cleared of the disease. Other people may differ from me in opinion, but the question can only be satisfactorily decided by putting it to the test of practical experience, which I am glad to say is being done in Argyleshire.—THE WRITER OF THE BOOK.

TREES AND SHRUBS FOR PLANTING NEAR THE SEA.

IN response to Mr. B. Cowan's query, I have noticed the greater portion of the undermentioned flourishing near the sea and not far from both tin-smelting works and a tanyard. Plants and trees that will thrive in such places will probably succeed with Mr. Cowan. *Trees*.—*Cedrus Deodara*, *Acer pseudo-platanus*, *Ailanthus glandulosa*, *Cratægus oxyacantha*, *Hippophaë rhamnoides*, *H. conferta*, *Ilex aquifolium*, *Pinus Cembra*, *P. insignis*, *P. Pinæa*, *P. Pinaster*, *P. Strobus*, *Pyrus Aria*, *Quercus coccinea*, *Q. Cerris*, *Q. Ilex*, *Q. robur*, *Tamarix gallica*, *T. germanica*, *Tilia europæa*, *Ulmus nigra*, *U. rubra*, *U. stricta*. *Shrubs*.—*Aucuba japonica*, *Berberis aquifolia*, *B. Darwinii*, *B. fascicularis*, *B. vulgaris*, *Arbutus procera*, *Escallonia macrantha*, *E. Ingrami*; *Euonymus*, silver, golden, and the common green-leaved varieties, the latter is the best; *Syringa persica*, *Ligustrum japonicum*, *Sambucus nigra*, *S. racemosus*, *Garrya elliptica*, and the fine ornamental Grass *Glycerium argenteum*. Should I notice any others I will not fail to communicate their names. I confess I am unable to answer Mr. Cowan when he asks, "Can it be explained why Elders withstand the effect of chemicals?"—W. ROBERTS, *Penzance*.

THE MOULD OR FUNGI ON THE HOP PLANT, PEACH TREES, POTATOES, AND GRAPES.

I HAVE this year had an opportunity of seeing and carefully examining the disease called the Mould in the Hops, having visited several of the Hop gardens in Kent; and from inquiries made both of the masters and men employed in the cultivation of Hops, I have come to the conclusion that the mould is caused by the sun. When the Hop is in full bloom, if a shower of rain is followed by scorching heat, the very abundant pollen, which has already been rendered wet, becomes baked on the plant, and the fungus is then produced. Many facts bear this out. First, the Hops, I am told, looked well and gave the farmers hopes of a good crop up to the time of their coming into bloom, and the mischief was not perceived till a week or two afterwards, when the fungus had begun its destroying work. Being caused by the elimate, I am afraid the fungus cannot be prevented. By planting different varieties of Hops so as not to have them all in bloom, the risk of loss would, I think, be less than it is now.

The blister on the Peach trees I think might be traced to the same cause. I have found trees that have been lifted and replanted have been the worst affected. The trees were on a south wall

with an abutment or pillars projecting 10 inches every 12 feet. The blister could not therefore be caused by the cold east winds, as the pillars would prevent that. I have also seen the double-blossomed Peach and Almond trees as badly affected in the plantation as these were against the wall, and trees on a wall facing the west have been similar.

It is quite possible the Potato disease might be induced by a scald from the sun in the same way as it always commences after heat and showery weather just at the time the skin is setting, the fungus being the result; as heat and moisture always favour the growth of fungi, and hot dry weather always has the opposite tendency and seems to arrest it. This will account for the fact that if Potatoes which have been affected are taken up and allowed to remain in a large heap most of them will rot, while laying them thinly in a cool place will save many of them.

The rust in the Grapes I have no doubt might be traced to the same cause, produced by the steam from the hot-water pipes and the action from the sun; but the shanking I cannot believe to be so caused, as it is always clearly due to exhaustion. Lifting and replanting the Vines in a fresh border will entirely remove all shanking till the Vines again become exhausted.—GEORGE CLEMENTS, *Hazeley Manor, near Warwick.*



KITCHEN GARDEN.

THE weather during the present autumn has been favourable for the eradication of weeds, and those who took advantage of it by hoeing frequently amongst the young autumn-sown crops will have benefited those crops considerably, and at the same time have imparted a neat appearance to the garden. The hoe is not only of great service in extirpating weeds, but the oftener it is used amongst such crops as Lettuce, Spinach, Cauliflower, and Cabbage, the less destructive will slugs be to the young plants. It is for this reason that sowing the seed in drills is preferable to sowing broadcast, when the soil amongst the young plants can only be stirred by a slow and tedious process. Weeds that are permitted to grow in the drills and seed beds of the crops named at this period of the year, render the young plants tender by excluding the air from them when every effort should be made to render them hardy. With this object in view—and it is of great importance—the plants should be thinned out sufficiently and in good time to provide for each sufficient space to ensure its becoming sturdy and to the greatest extent hardy. This remark applies to all crops that are sown in the autumn, for overcrowded growth now is an almost certain precursor of failure in a few weeks or months hence. Thousands of plants are sacrificed annually through the neglect of timely thinning, and the matter demands special attention at the present time. Plants for the earliest crops have been already transplanted, and as those from successful sowings become large enough they must be transferred to the positions prepared for them, and the sooner such work is completed the better. Celery should be earthed before the occurrence of severe frosts, as if the plants are in the slightest degree injured before the earth is applied decay will ensue, and the value of an important crop will be seriously impaired.

FRUIT HOUSES.

Vines.—Late Vines judiciously aided with fire heat in the spring will have finished off crops of ripe well-coloured fruit, which will winter much better than Grapes that still require artificial heat to ripen them. With the Grapes thoroughly ripe the wood and foliage will be well matured, so that all spray and laterals may be removed down to the chief buds. Liberal ventilation will be required upon all favourable occasions, and as the foliage ripens the temperature may be allowed to fall to a minimum of 50°. Late Grapes require to hang some time before being in suitable condition for table. These and other ripe Grapes will require examining twice a week, and to prevent dust settling on the berries sweeping and raking must be avoided as much as possible. There must not be any further delay in pruning Vines that are intended for supplying Grapes early in May. Dress the Vines with an insecticide, and clean the house

thoroughly, keeping it cool to ensure complete rest until about the second week in November. Vines that were pruned last September, and intended to afford ripe fruit in March or early April, should now have the house closed, but do not allow the day temperature to exceed 65° without free ventilation. Fermenting material inside will assist the Vines in starting, but it is necessary that it be prepared by damping and turning it over a few times in a heap. If the roots of the Vines have access to outside borders, some fermenting material should be placed on them at least a fortnight before closing the houses, or at least the application of fire heat. The earliest Vines in pots may now be started, and if a little bottom heat can be afforded them they will start better; the temperature at the base of the pots not exceeding 70° until the Vines are growing. The temperature at starting should not exceed 55° artificially, and 65° by day without free ventilation, but it may gradually be increased to 65° by day artificially, and 70° to 75° with sun heat, and 60° at night, falling to 55° in the morning. The canes should be slung in a horizontal position to induce them to push their buds evenly throughout the length of the rods. The house and Vines should be damped two or three times a day. Young Vines will show a disposition to continue growing, but this must be checked by moderate stopping, and the ripening of the wood facilitated by keeping a high and dry temperature through the day and by shutting off the heat and opening the ventilators by night. Where bracken is plentiful a good supply should be prepared for covering up late borders before the shutters are placed on for the winter.

Pines.—Young growing plants should now be arranged so as to obtain the fullest benefit of sun heat. With the diminution of this a corresponding reduction of temperature should take place until it reaches the artificial winter standard—viz., 55° to 60° at night and 65° in the daytime. Whenever circumstances are favourable ventilate freely. Pay great attention to watering at the roots, making a weekly inspection, and whenever a plant needs water supply it copiously at the same temperature as that of the house. Continue 70° as the minimum for fruiting plants, 75° artificially in the daytime, and 80° to 90° with sun heat, closing at 85°, sprinkling the surfaces of the pathways as they become dry, and occasionally syringe the plants on fine sunny afternoons. Keep the bottom heat steady at 85° to 90°. Avoid too much water at the roots, as this is apt to cause the fruit when ripe to cut black at the centre, especially during the winter and spring months.

Peaches and Nectarines.—The trees in the earliest forced house have now lost their foliage, and if any pruning or dressing be needed the trees should be attended to before tying them to the trellises. The borders may be pointed over, the loose surface soil removed, fresh loam and decayed manure supplied, adding about 12 per cent of half-inch bones or bone meal, and a similar per-centage of wood ashes, following with a good watering. The roof lights may remain off until November, when it will be necessary to replace them to ward off heavy rains and probably snow, air being freely admitted, except during frost. Allow the outside borders of early houses to have the benefit of whatever rains may fall in October, afterwards protect them with litter, shutters, or tarpaulin. The foliage of trees started early in the year will be falling, and should be cleared away as they fall. When they are all down lose no time in having the house thoroughly cleaned and the trees pruned, dressed, and tied to the trellises, top-dressing the border as before advised unless the trees have been lifted or root-pruned this season, when it will not, of course, be necessary. Late houses should be proceeded with as the trees are cleared of their crops in lifting wholly or partially as may be necessary, any operation necessitating interference with the roots being best performed whilst the trees are in leaf. Where there is any shifting of trees or transplanting from walls needed it should be done whilst the trees are in leaf, the wood and foliage being mature before doing so, as immature growths are liable to shrivel if the trees are disturbed at the roots too early.

PLANT HOUSES.

Stove.—Where climbing plants are trained up the rafters and flower in the summer, such as Aristolochias, Passifloras, &c., they should be cut freely back now to allow plenty of light to reach the plants that

stand under them; but *Ipomæa Horsfalliæ* and plants of a similar habit that flower through the winter must not be pruned now, as what is cut away will necessarily reduce the number of flowers. The following climbers are in flower now:—*Bougainvillea glabra*, *Stephanotis floribunda*, *Passiflora Madonna*, *P. kermesina*, *P. princeps*, *P. calycina*, and *P. Countess Guiglini*; *Allamandas* and *Dipladenias*. *Stephanotis floribunda* must not be cut-in at this season. The best plan to insure bloom with this plant is to grow it in a light position, and not too moist, allowing it to remain on the roof through the winter and for flowering, after which thin-out or cut well-in, and encourage fresh growth for the ensuing season.

Allamandas intended for early flowering that will need to be cut back at the commencement of the coming year should now receive no more water than will keep them from flagging severely. Keep the plants near to the glass in a warm dry atmosphere, and a free circulation of air where it will not affect other plants injuriously. Ripening stove plants by plenty of light and a moderate dry atmosphere is every way more satisfactory than the low temperature sometimes resorted to to induce rest. *Ixoras* that have become too large should now be cut well back; and if there is any mealy bug wash the plants thoroughly with an insecticide, repeating the operation two or three times in the course of ten days. Where stove plants are grown in large numbers and sufficient heat is employed to have them in good condition mealy bug increases rapidly. This is the best time in the year to endeavour to destroy it, as an onslaught now made and persisted in for this and next month, when the insects increase very slowly and the plant is at rest and better able to bear an application of the mixture, will prove most effectual. Every part of the plants from the soil to the point of the shoots, every crack and inequality, must be thoroughly washed, and this should not be done once but half a dozen times, so that no insects escape. Old tan or similar material must be cleared away, every hole or crevice in the brickwork stopped up, and thoroughly wash the walls with lime, the woodwork where necessary being painted thoroughly.

Begonias of the winter-flowering section should receive every encouragement, supplying liquid manure, giving all the light possible, and sufficient heat, but no more than is requisite to induce their flowers to open freely. So treated the flowers in a cut state will last much longer than those from plants grown in a hot, moist, and dark house.

Richardias.—A few plants should now be placed in heat for early flowering; a temperature of 55° at night is ample, and 65° by day, as when kept warmer they become weak in leaf and flower, not bearing moving to a conservatory where the temperature is lower; therefore to ensure dwarf sturdy plants keep them near the glass, keep them well supplied with liquid manure, and ventilate the house moderately.

Lily of the Valley.—A few pots or pans of these should now be placed in heat, the flowers being at no time more acceptable than at the close of the year. Roots that have been forced in spring and continued under glass until the growth was completed, and then placed outdoors to rest, will have well-developed crowns, and can readily be forced. At this season a bottom heat of 85° to 90° for single crowns is absolutely essential, so as to give the roots a start in advance of the tops, otherwise they are apt to go blind. Covering them with pots is often attended by the flowers going blind when the cover is removed, and if pots are employed at all they should be removed gradually so as to inure them by degrees to full light. Place a few more Roman Hyacinths, Paper White and Double Roman Narcissus, in moderate heat to insure a succession of flowers; keep them near to the glass, and in a temperature of about 55° artificially.

NOTES ON VILLA AND SUBURBAN GARDENING.

FLOWER GARDEN.

Pelargoniums.—Frost has already been experienced in some districts, and may shortly be anticipated in most parts, however favourably situated they may be; therefore the lifting and potting of choice *Pelargoniums*, or of any of which there are insufficiency of cuttings struck, should no longer be delayed. The common varieties may be

packed thickly in boxes, but those of the bronze, zonal, or tricolor types should either be potted off rather thickly in 5-inch or 6-inch pots, or singly in 3-inch pots. Lift the plants with a fork, pick off the oldest leaves, trim-in the roots with a knife, and place the plants in pots or boxes firmly. Employ shallow well-drained boxes; the pots to be also well drained. Any common light sandy soil will do, provided it is not dust dry. With regard to watering, much depends upon where the plants are to be wintered. In any case no water should be given till the roots are healed, or damping off will probably be the result. Those that are to be kept in frames should have a dry well-drained bottom, receive abundance of air, and have the decaying leaves frequently picked off. The best places for them are on the back shelves, the swinging shelves of vineries, or the back shelves of the greenhouse; but the autumn-struck cuttings should receive the preference for these positions, the older plants, especially the common varieties, being most hardy. Old plants are sometimes cut back when lifted, but the above plan is best, and besides it gives an opportunity of striking more cuttings in the spring. Autumn-struck plants may be placed in their winter quarters, but should receive as much light and air as possible, and be kept almost dust-dry at the roots to prevent them making strong growth, the result of which is to make them much more susceptible of injury from frost and damp.

Ageratums and Lobelias.—Although these come remarkably true in some instances from seed they are best propagated by cuttings, as they then make a much more even and more floriferous growth. Select any that are of marked superiority, and lift with a small ball. Place the *Ageratums* in 6-inch pots, and the *Lobelias* in 4-inch pots. Drain well, employ moderately rich soil, and pot firmly. Water them, and place in a somewhat shady position in a house, or keep them rather close in a frame till established. Both may be trimmed-in, but not very closely. *Verbenas*, with the exception of *V. venosa*, do not lift well, neither do *Heliotropes* and *Petunias*; but where cuttings were not struck during August the attempt should be made both to strike cuttings if a little bottom heat is available, and also to lift a few old plants, the latter to be treated as advised for the *Ageratums*, using, however, 5-inch pots for them. *Verbena venosa* strikes most readily from the roots in the spring, and as they are not quite hardy a good quantity should be lifted with the roots entire if possible, have their top trimmed-in, and be packed thickly and flatly in shallow boxes. If rather moist soil be used no water will be required, especially if they be wintered in cold frames.

Abutilon Thompsoni and Veronica Andersoni variegata.—These after doing good service in the flower garden can be readily lifted and prove equally as effective in the greenhouse during the dull winter months, and be much superior to any that may have been kept in pots. Lift with a good ball which may be reduced so as to go into 8-inch pots, and still smaller in the case of the *Veronica*. Employ good soil, water after potting, and keep them somewhat close and shaded for a time.

Dahlias.—Those that are unnamed should each have a label bearing a description of the variety for future guidance fastened to the bottom of their stems, and old labels renewed where required as soon as they are damaged by a slight frost, or if a very severe frost be imminent cut down the plants to within 9 inches of their base; lift carefully, clear the tubers from soil, and when these are thoroughly dry pack them away in a dry shed. A little dry soil may be worked in among the tubers, and they should be protected from severe frosts. They will keep plump in a cool dry cellar if placed in a single layer without any soil about them.

Cannas if in a well-drained position may be wintered in the open ground, provided they are well protected with leaf soil, coconut fibre, or other material; but the simplest plan is to lift the clumps with a little earth attached and store away with the *Dahlias*. Clumps wintered in a cool dry cellar started readily last spring, whereas many in pots wintered in a cool house failed to start afresh. The Golden and White Marguerites (*Chrysanthemum frutescens*) may be readily lifted, and can be wintered in a cold frame or greenhouse. A strong plant will give a number of cuttings in the spring, which will strike readily in heat.

Violas and Shrubby Calceolarias.—These require similar treatment,

being propagated by cuttings at this time of the year. Shallow cold frames are suitable both for striking and wintering them, fire heat being injurious to both. Place a layer of rough material in the bottom of the beds for the frames, over this place a layer of light sandy soil, about 6 inches in depth, and on this place a layer of sifted soil, which may consist of equal parts leaf soil and loam, with a liberal quantity of either road grit or sand. Make this level and firm, sprinkle over a little more sand and dibble in the cuttings, in the case of the *Calceolarias* 2 or 3 inches apart each way, and the *Violas* a trifle thicker. The *Calceolaria* cuttings may be about 4 inches in length, trimming off the lower leaves and cutting to a joint, and the *Violas* made in the same way may be about 3 inches in length. Water them in through a fine rose pot, keep close and shaded from bright sunshine during the day, and protect with mats during frosty weather.

Miscellaneous Bedding Plants.—*Echeveria metallica*, *Pachyphytum bracteosum*, and *Kleinia repens* should be lifted and either potted off singly into small pots or they may be packed closely in boxes. Any light soil will suit them, and they may be wintered in a cool greenhouse, providing they receive but little moisture at the roots. If plants of *Mesembryanthemum cordifolium variegatum* are lifted they should be potted firmly in 3-inch pots, employing sandy soil. Place them on a shelf in a rather warm greenhouse, and water sparingly. *Alternantheras*, *Coleus Verschaffeltii*, and *Iresines* when lifted should be placed in small pots, and require the temperature of a plant stove to establish and also to winter them. *Sedum glaucum* is quite hardy, but a few roots of *Mentha Pulegium gibraltaria* should be lifted and wintered in boxes, or planted out rather thinly in cold frames, as it succumbs during a severe winter. *Echeveria secunda glauca* is not quite hardy, and should be packed away closely in a somewhat dry position where they can be protected during severe weather. They may be packed on their sides in banks made against a warm wall, or in cone-shaped heaps, and be covered with mats during severe weather. They may also be tied-up in bunches and suspended in vineries on the back walls of greenhouses. Cuttings of the useful and hardy *Euonymus radicans variegata* may yet be inserted in sandy soil under handlights or in the open, and a handlight is also suitable for the present propagation of *Veronica incana*, *Leucophyton Brownii*, and the Golden Thyme.

TRADE CATALOGUES RECEIVED.

Wm. Rumsey, Waltham Cross.—*Catalogue of Roses.*

L. Spath, Köpnickerstrasse, Berlin.—*Catalogue of Plants, Shrubs, and Trees.*

André Leroy, Angers (Maine-et-Loire), France.—*List of Trees and Shrubs.*

Hogg & Robertson, 22, Mary Street, Dublin.—*Catalogue of Bulbs.*

Osborn & Sons, Fulham, London.—*Catalogues of Fruit Trees, Hardy Trees, and Shrubs.*



* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (W. C. B.).—The "Garden Manual" contains much more practical information on the subjects to which you allude than does the other book which you mention; but only large and expensive volumes contain "full details of the culture and forcing of all kinds of plants, vegetables, and fruits during winter." You will find the "Garden Manual" very useful, and further information can be had through the columns of the Journal.

Old Hotbeds (Idem).—If the manure, as it usually is after fermenting in heaps for some months, is in a moist and decayed state, it is of no further use for heating purposes, and is only of value, and this value is great, for enriching the soil. Any dry portions may be shaken out and mixed with fresh stable manure and leaves for future beds.

Journalism (O'S., Dublin, and Others).—We are obliged by your letters, but it is not necessary to publish them. The circumstance is amusing, and the article to which you allude is certainly original this time, and not purloined. We have not the slightest objection to its publication, as it is a confession of a disreputable practice.

Pruning Fruit Trees (F. J.).—As you say your trees have been well attended to during the summer and need little winter pruning, we presume that all the sun and air possible have been admitted to the wood and foliage. Still you ask if the side shoots should be shortened to three or four leaves now. If the trees are in a healthy free-growing state the shoots may be so shortened at once, but if the growth is at all weak a few more leaves would be advantageous rather than otherwise. Winter pruning should be done as soon as the leaves have fallen from the trees. In removing trees it is desirable to take out all the roots possible, but we do not think the few of which you speak will be injurious to the other trees. If the timber intended for garden frames is creosoted a few months before the frames are used they will not be injurious to the plants that are placed in them.

Sam Young Apple (J. J., Cork).—You have been rightly informed that this Apple is of Irish origin. It is a small dessert Apple of excellent quality, and was introduced to public notice by Mr. Robertson, nurseryman of Kilkenny. You may safely add it to your collection.

Covering Latticework (Block).—As you require a screen we presume your latticework must be covered with an evergreen plant; if this is so there is none equal to Ivy. *Hedera Ragneriana* is a free grower and has handsome foliage. If an evergreen plant is not essential *Ampelopsis Veitchii* would be suitable. There are also evergreen Roses if you prefer plants of this nature. The Ivy if employed would need to be secured to the trellis for a time at least, but the *Ampelopsis* will cling to anything.

Wild Flowers of Great Britain (Rosa).—There is no Linnæan index to this work, but there is a systematic index according to the natural arrangement to each volume. No 231 is the last number.

Grapes Mouldy (B. D.).—Look over the bunches carefully every morning and remove every berry that has the slightest appearance of mould upon it, as one berry will speedily affect the rest, and the bunches if not attended to will soon be spoiled. Employ a little fire heat, and admit air freely by both front and top ventilators on all fine days. If you have plants in the house, water them with the greatest care, only pouring as much water in each pot as the soil will absorb, and not spilling a drop on the floor. The temperature of the house should not be much below 45° at night; this with a dry atmosphere will arrest the spread of the mould. Possibly the bunches have not been thinned sufficiently—the closer the berries are packed together the more liable are they to decay.

Roses in Ireland (Sligo).—We are glad to hear of your success. Roses are excellently grown in many Irish gardens, and there is no reason that they should not be grown there quite as well as in any part of the Queen's dominions. As a Rose for your porch you cannot do better than plant *Gloire de Dijon*. We do not know any other variety that so well combines all the properties you enumerate of being "hardy, a free grower, and producing fine and sweet blooms early and late in the season."

Propagating Ageratums (D. Webb).—We know of no more simple and certain mode than potting a few old plants from the beds, choosing the most sturdy. They may be partially cut down, and if well watered will soon be established. One good plant will afford cuttings in the spring from which a hundred plants may be raised by the 1st of May. It is rather late now for inserting cuttings, and taking up a few old plants will be the best mode of insuring a stock. They may be safely wintered in a greenhouse or vinery from which frost is excluded.

Wormleighton's Seedling Potato (Old Subscriber).—If this variety was raised, as we are informed it was, by Mr. Wormleighton, the above is its correct name. The name is spelled in three different ways by three gardening journals. We readily, as you know, answer all the questions we can that are submitted to us, and we are not accustomed to receive complaints from contributors whom we have endeavoured to supply with the most accurate information we could obtain. Your letter of last week contained a complaint not couched in the most pleasant terms. Our courtesy is at least equal to your own. You have asked us many questions, which we have answered; we have only asked you one, which you have not answered. We ask it again, Why do you not send your name and address?

Brussels Sprouts (A Reader).—Removing the heads from the plants may slightly accelerate the production of sprouts; but there is little gained by the operation, as if wet weather follows alternating with frost the centres of the plants may decay. You ought to have sown the seed earlier and grown the plants more generously had you required side sprouts at the present time. Some gardeners cut off a portion of the leaves from the stem for inducing an earlier growth of sprouts, but we have not tried the practice.

Wormcasts on Lawns (W. M. Grose).—Place a peck of quicklime in thirty gallons of water, stir well up, and allow it to stand for a few days until it is quite clear; then water the lawn thoroughly with the clear lime water. The worms will come to the surface, when they may be swept up and cleared away. This is an old and useful mode of eradication, but last year Messrs. Dick Radcliffe & Co. stated in our columns that if 1 oz. of corrosive sublimate is dissolved in a little hot water and then mixed well in forty gallons of pump water, and applied to the lawn with an ordinary watering can in the evening after a shower, the worms will disappear, and the grass will not suffer any injury.

Rhododendrons for Beds (C. D., North Wales).—If you order your nurseryman to send you dwarf and close-growing varieties they will, if transplanted occasionally, be some time before they "outgrow their quarters;" when they do so you must thin them, removing some of the shrubs to other positions. Severe pruning will not answer your purpose. October or early November is a good time for transplanting these shrubs and *Kalmias*.

Dianthus and Aquilegias (Idem).—In some soils and districts *Dianthus Heddewigii* passes the winter quite safely in the open ground, especially when the plants have been raised in the open and grown thinly, not thickly crowded in pots, pans, or boxes. Not knowing the condition of your plants we are quite unable to say if they will withstand the inclemencies of the winter; if they will not, the protection of a frame would be better than placing them in a greenhouse where they would inevitably become drawn and rendered too weakly for flowering well. Only a small per-centage of the seedlings of *Aquilegia cærulea hybrida* are identical with the original form, but a number of pretty varieties usually result from a packet of seed.

Wintering Fuchsias (D. A., Oron).—Your old plants that have ceased flowering and now losing their leaves may be safely wintered in any cool dark or

light place from which frost is excluded. Water should be gradually withheld from the plants, and in a short time all the leaves may be shaken off. Only sufficient water will then be needed to keep the wood fresh and the principal roots from shrivelling, and the plants will be as well under the stage of a greenhouse or in a cellar as in a light place until signs of fresh growth are apparent in the spring, when light is essential.

The Hesse Pear (*S. N., Leicester*).—You have been rightly informed that this old variety is one of the most certain, serviceable, and useful of orchard Pears. The tree is hardy and a great bearer, and the fruit is well known and esteemed in the markets of the midland and northern counties. It is not unusual for trees to bear 40 stones of 14 lbs. of fruit, and this sometimes when trees of other varieties are comparatively barren. You may safely plant a "tree or two" of this Pear in your orchard, and in due time they will give a good return for the space they occupy.

Physalis Alkekengi (*N. S.*).—The specimens you sent are the fruits of the Winter Cherry (*Physalis Alkekengi*) is a perennial herbaceous plant, often found in gardens, producing round red berries like Cherries, having an acidulous, slightly bitter, and not unpleasant flavour. They are chiefly recommended as a diuretic, but in America they are commonly eaten to quench thirst, and in Germany, Switzerland, and Spain they are served at the table as dessert along with other fruits. The fruit of *P. pubescens*, a native of North America, is eatable, and made into confections. It is now naturalised in Italy, where it is cultivated in gardens, and highly esteemed for its sweet acidulous berries.

The Peachblow Potato (*S. Gibson*).—On some soils and during favourable seasons the tubers of this Potato are of excellent quality. Some cultivators esteem it the best of the American round varieties. We have known it almost or quite equal when cooked to York Regents, and we have also seen the tubers close and watery. In this respect it varies almost as much as the Early Rose does, and this variety we have seen take the first prize in a competition of cooked dishes of all the most esteemed English varieties, while from other soils it was not fit to be eaten. As your soil is light, thin, and dry, you may safely try the Peachblow.

Storing Cannas (*Suburban*).—Some of the strong-growing varieties will keep safely in the ground if the surface is covered a foot thick with leaves or manure. It is found, however, the safest plan to take up the choice varieties and place them under the stages of cool plant houses, sprinkling a little soil amongst the roots to prevent them shrivelling. As the plants grow in spring they are divided and potted, and are not only in good condition for planting in May, but they can be arranged according to their heights in a bed or border. When wintered in the ground they often come up in an irregular manner, some of the plants being a foot or more high when others are only a few inches, and the effect is then not at all agreeable.

Measuring Flower Pots (*A. Boyle*).—When the diameter of a pot is stated by a writer it alludes to the width of the pot measured from the inside and just below the rim, as indicated by the letters A A in your diagram.

Names of Fruit (*Peter Marks*).—The Plum is Pond's Seedling. No. 1 Benrre d'Amanlis; 2, Beurré Diel. (*George Swails*).—There must have been some mistake in packing the fruit in the first instance, which was undoubtedly Alfriston, the same as the single fruit now before us. The three fruits sent to us this week are Reinette de Canada. (*J. Prothero*).—1, Gloria Mundi; 2, Hollandbury; 3, Federal Pearmain; 4, Alfriston; 5, Dumelow's Seedling; 6, Antum Pearmain; 7, London Pippin. (*J. J. & S.*).—1, Mère de Ménage; 2, Gloria Mundi.

Names of Plants (*Aldermaston*).—*Leycesteria formosa*. (*Flora*).—*Pulicaria dysenterica*. (*Nil Desperandum*).—1, *Doodia aspera*; 2, *Asplenium fontanum*. (*Junco*).—*Eupatorium purpureum*. (*J. B.*).—The specimen was very much crushed, but it resembles *Chysis aurea*. (*Mrs. B.*).—*Passiflora kermesina*. (*B. D.*).—The succulent plant is *Sedum carneum variegatum*. The tree is *Pyrus pinnatifida*. (*A. F. G.*).—Probably a form of *Verbascum virgatum*. (*A. Milne*).—1, *Gasteria verrucosa*; 2, *Sansevieria zeylanica*; 3, Specimen very small, but it resembles *Gasteria latipunctata*. (*Rosa*).—The flowers sent are those of *Angræcum bilobum*, and are very much smaller than *A. sesquipedale* which bears flowers with spurs exceeding a foot in length. (*Constant Reader*).—1, *Aristolochia Sipho*; 2, *Cedrus atlantica*; 3, *Ailanthus glandulosa*; 4, *Andromeda floribunda*.



POULTRY, PIGEON, AND BEE CHRONICLE.

ROTATIONS FOR CROPPING LIGHT SOILS.

THIS is a subject affecting a very extensive portion of the kingdom, for light soils are not confined to any particular county or district either in England, Scotland, or Ireland; and when we consider the variations of soil which come under the name of light land, and take into account the effect of the climate upon cropping, the importance of the task we have undertaken is at once indicated. At the same time it must be understood that systems of cropping go a long way towards influencing the mode of stocking the land, especially as regards sheep. It is said by some farmers that sheep do not pay—that is to say, they do not yield a direct profit; but there are two ways to view this matter, for in case we charge the animals with the cost of their food in crops they consume—that is, rent, tithes, rates, labour, tillage, manure, &c.—it will not always show a direct profit; but it must be borne in mind that this is the only way of selling our green

crops, &c., by the amount realised from meat made through their consumption, or by animals reared and sold as lean stock. The important point, however, next to be considered is the treading and manuring the land obtains by sheep, for under the heading of "Light Soils" we meet with land which would be absolutely sterile if it were not for the firmness contributed by the tread of the sheep during their consumption of roots and green crops upon the land. Again, it must be further considered that the manure left by sheep is almost the only way in which outlying land can be advantageously dressed and rendered productive of cereal and other crops for sale. We have thought it necessary to make these remarks, because in setting out various rotations of cropping the advantages of stock may not be directly referred to, but must be understood as part of almost any system of cropping connected with light land. Artificial manures often fail in their effect upon certain soils; and in the absence of sheep the labour of rendering the land firm, although aided by the use of the best implements, would be very costly, and even then never equal to the tread of the sheep.

Previous to any remarks upon actual cropping we must allude to certain applications upon light land, with the object of consolidating it and rendering it more capable of resisting the action of heat and drought; at the same time there is every reason why we should avail ourselves of an addition to the land of substances which will have a double action—that is to say, both mechanical and chemical. It is a common practice to apply to light and blowing sands, as well as thin gravels, a large and liberal dressing of clay of the most tenacious kind within reach, so as to diminish the cost of cartage; but the quantity to be used is a matter of great consequence, for if we give too heavy a dressing it makes the land work unkindly. We cannot therefore recommend more than 12 or 14 yards, or one-horse cartloads per acre, for one dressing, preferring to give another dressing at a future time rather than a heavy quantity at once. We also recommend a liberal dressing of manure salt, fishery salt, or kainit at the same time as the clay is applied. There is, however, a better dressing than the ordinary yellow, red, or blue clay, which usually contains but little chemical qualities besides potash, and this varying greatly in degree; we mean the calcareous clay, usually compounded of carbonate of lime and clay, and commonly called marl. The best marl is generally found in those districts where the chalk soils meet the clay. This is the best of all soils for the improvement of any light land, but especially where sharp white sand or fine gravel prevails. This marl not only acts its part in consolidating the land, but improves its chemical composition, the latter being as essential as the former. We often find these sands and gravels particularly subject to weeds, and also unfavourable to healthy vegetation, especially in the cultivation of Swedes and Turnips, which are, in the absence of chalk or lime in some compound or other, subject to club roots and rotteness, and otherwise possessing but little feeding value. We have been induced to enlarge upon this part of the subject because it is desirable to vary the crops as much as will tend to profit, for in those cases where the land will not bear pulse or cereal crops it is wise to turn them to account by the growth of salcable crops of any variety for which there may be a local demand; therefore by improving the staple and productive powers of the soil apart from ordinary manure, we at once widen our powers of production by enabling the land to carry a rotation of valuable crops, which in its ordinary state it would be useless to attempt. There is much land in various parts of the kingdom which tradition informs us was originally rabbit warrens. This is especially the case in Norfolk and Lincolnshire, and in some cases where the home farms possess such soils there is no reason why some land may not be again converted into rabbit warrens upon the new system, affording not only sport for the proprietor,

but also yielding an acreable return of profit equal to some of the best soils.

We propose to consider first the rotation of cropping for light chalk soils. We shall, however, find it necessary to make some distinction between those farms possessing irrigated meadows or useful pastures. We will therefore take first for example a farm having the advantage of meadows at the vale end, and we assume that the farm contain 550 acres, 50 acres consisting of pasture—viz., 25 acres of water meadow, and 25 acres of down or sheep walk on the hills; we then have the cropping of 500 acres to arrange. Our opinion is that a five-course rotation will be best, as it will carry more sheep than the four-course, to which we shall have to allude further on. The cropping will be—1st, Wheat; 2nd, roots and green crops; 3rd, Lent corn; 4th, Clover and grass; 5th, old field grass. We shall have first 100 acres of Wheat, half of which will be sown after Rape, Turnips, &c., fed off by sheep on the land; and the other half once ploughed out of old lea. In the next course we have to crop 100 acres with green crops and roots; 50 acres of this should be autumn-fallowed, taking the foulest land for the purpose, and this portion will then be ready in the spring for drilling with Mangold seed and Swede seed, for upon the exposed chalk hills the roots must be early to obtain full crops. The Mangold should not exceed 10 acres, leaving 40 acres for Swedes. On very thin poor land Mangold may be omitted and Swedes only grown. We have then 50 acres left for green crops, to be followed by roots, and this should be the cleanest land; but in the event of couch being present it should be forked-out to save time and tillage. About 10 acres of Rye may be sown for early feeding, 10 acres of early Trifolium, and 10 acres of second early Trifolium, and 20 acres of winter Vetches. All these crops should be fed off by sheep, except that perhaps a little green fodder may be required for horses, &c. Still the object is the manuring of the land by sheep, to enable it to produce a full crop where it is to be occupied with roots, and upon this poor land a liberal dressing of manure applied by the drill will also be necessary. The roots should be Swedes after the Rye, Hybrid Turnips after Trifolium, and Grey Stone Turnips after the Vetches, to be sown in divisions as fast as the land is cleared of the green crop.

The third course will consist of 100 acres of Lent corn. The question to be decided will be, What sort? Now, on very exposed aspects we recommend taking a crop of drege, but on the kinder soils and sheltered vales Barley will succeed. The reason for sowing drege is not only because the Oats will bear the bleak winds, but because when two sorts of grain are grown together there is a greater probability of obtaining a plant when attacked by wireworm, which on the soils we are referring to is the greatest enemy we have to fear. If 10 acres of Mangolds are grown these should be carted away, heaped, and covered secure for the winter upon old lea ground, because the land whereon they grow may then be sown early, and the fact of feeding them on the old lea will supply the sheep at a time when they would otherwise be feeding the Swedes on the land, which would delay the time of sowing the Barley or drege that may follow. It will at once be seen how desirable it is that the sheep-feeding should not delay the sowing of corn. In the next course we have 100 acres to be sown with Clovers and grass in the Lent corn; and in order that these should not become too gross and injure the corn at harvest time the seeds should not be sown until the corn is growing, about a month after sowing, and the seeds rolled in; the advantage of this is that the young plants will be more likely to avoid night frosts, and their growth somewhat delayed, and thus prevent their injuring the corn. We recommend the seeds to be sown as follows:—50 acres with Red Clover, Alsike Clover, and Giant Saintfoin, the object being to obtain two fall crops of hay for the sheep. The other 50 acres should be sown with Dutch Clover and Trefoil or Hop Clover, together with Perennial Rye Grass and Timothy Grass, as it will be entirely required for feeding with sheep. When the grass course comes round for seeding again at the end of five years the portion which was Clovers and Saintfoin should be reversed, and seeded with Dutch and grasses. In this way each will be likely to succeed better, because there will be nine years between the periods of growth.

In the fifth and last course we must bear in mind that we have to prepare for the succeeding Wheat crop, which is the first crop of the rotation. Having 50 acres of Clover and Saintfoin lea this should be reserved for sowing Wheat upon, previous to which it may be either cut for hay or fed with sheep, as circumstances and the seasons may render requisite. In the month of August the land may be dunged with farmyard manure and early ploughed in readiness for sowing with Wheat at the usual period. We have now to deal with 50 acres of old lea in grasses. This may be fed off by sheep, and on which the produce of 10 acres of Mangold will also be consumed up to midsummer, after which the land should

not be pared and burned, but ploughed and pressed, and sown with Turnips and Rape seed, with artificial manures, the roots fed off by sheep, and the land sown with Wheat.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The horses have for some time past been unable to have upon the land under tillage as autumn fallow, but in those cases where the steam cultivator has been employed there has during several weeks previous to the 10th of September been much useful work done. As, however, the late rains came suddenly on the unfinished fallows in many cases the horses will be required on the first favourable opportunity to work out the grass and weeds, so that they may be dealt with on the surface, and be either burnt or carted away as the weather may permit. It is essential that in the event of the weather being adverse everything on the surface should be carted away to heap or laid out on the meadows, so that after Wheat-sowing is finished the land may be deeply ploughed and laid up for the winter months. No hindrance, however, need take place in the horse labour, for the manure from the yards, heaps, or cattle boxes may be laid out and spread upon the Clover leas, upon any dry land intended for Wheat and ploughed in, the late rains having softened the ground for ploughing and pressing. The land, also, where Turnips or Rape, &c., have been fed off by sheep will now be in good order for ploughing and sowing; for we like upon this preparation for Wheat to plough and drill the corn the same day, this being the surest plan to obtain the best seed bed, for as the season advances it will be found difficult after heavy rains to get the fallowed land in working condition if the seed time is delayed. Upon lea ground it is different, for rains settle the land down firmly and secure a good seed bed, especially upon any light soil. Upon any heavy soil it is often found best to secure a good seed time by sowing or drilling the land as fast as it is ploughed, any land being then more freely worked.

Hand Labour.—Men should now be employed in cutting off the bunches of grass upon the pastures, which may have been refused by the cattle and run up to seed stems, either with the scythe or the mowing machine. The cut grass should be raked up and carried away, because these grass stems often have ergot in the seed heads. Now, this is often the cause of abortion in dairy cows, and is sometimes a very serious matter, for when abortion commences in a herd of cows it cannot always be prevented from extending. We have also always been very particular in having the grasses and weeds cut off the banks and borders and carried away before seed heads were ripe, in order to prevent the formation of ergot, the effect of which is but little understood by many home farmers, or the insidious nature of the disease resulting in abortion. The men will still be employed in spreading dung. If the stubble Turnips, which have made great progress lately, should be considered worth hoeing, this work should be done if the weather is favourable, and if the land is dry enough the horse hoe and hand hoe may both be employed with advantage if the land is rich enough to give good Turnips, as these of a mild and open season will continue growing until Christmas. If the plants have not made much progress harrow or drag occasionally in suitable weather, and they will then, if thick enough, give in the spring a crop of greens, which may be valuable if fed off by sheep as a preparation for a crop of Mangold or drege corn.

As we have often advocated the building of ricks of corn or hay in the fields where grown, it will be necessary when the corn is thrashed to have the straw or haulm carefully ricked and thatched immediately, so that the straw, either required for fodder or otherwise, may be found dry and sweet when the cutting-out and carting to the home-stead is required. The low-lying meadows should now be trenched, so that the first heavy rains may drain away quickly. The water meadows, too, where they have been fed down sufficiently may now have all the mains and drawing trenches done out in order that they may be used at the first opportunity, thus taking advantage of the first flooding rains, which always carry a valuable sediment brought down from the high lands under tillage. The dairy cows should have some early Cabbages scattered over the pastures to supplement the grass, or else receive them in their stalls at milking time; but in the absence of Cabbages, and where but little arable land is under occupation, cotton cake may be given with great benefit to the cattle and advantage by manuring the grass land. When, however, cattle receive cake whilst feeding on the grass land it will always pay to employ a man or woman to spread the cattle droppings every few days, otherwise the benefit derived only makes the grass grow luxuriantly in bunches, which are refused by the cattle during the first year of growth. Horses, however, may be turned in to consume these bunches of grass in the absence of the cattle, but this does not affect the irregular action of this valuable manure, and which will certainly answer for spreading in some way. The chain harrow is sometimes used for the purpose. In buying in sheep stock it will still be necessary to obtain a written warranty of soundness, for in the grazing districts, where there is but little change of food for the animals, it is said that various flocks are still affected with the fluke rot. The purchase of sheep is still going on, and in the event of first-class Hampshire downs being required as well as the Dorset horned ewes for early lambing, if sought for, Weyhill fair in Hampshire, to be held on the 11th of October, is the best opportunity for obtaining the choicest stock. The crop of roots generally is so early and abundant

that it will be the means of forwarding in condition all the sheep stock as store animals, as well as those which are feeding for the butcher; but this plentiful supply of vegetable food should not induce the home farmer to give his ewes which are breeding any more than a very moderate allowance of Turnip, Cabbage, or other roots. Always when supplied the animals should run in the stubbles, Saintfoin, or old leas, as the change of diet is highly necessary; at the same time it is very important that the ewes should not be allowed to lie about on the Turnip fields like fattening stock but be moved for exercise, which is necessary.

ADVANTAGES OF A HOME FARM.—No. 3.

THE effect of the drainage of the whole of the grass land, a hundred acres in extent, has been an earlier stronger growth of grass in spring—a matter of the utmost importance for dairy cows as well as for the lean stock—a warmer drier surface, and herbage of a finer and more nutritious quality, which is of equal importance for the sheep, not only as affording them better food, but also as contributing in no slight degree to keeping them in a healthy condition. This last assertion may now be made with confidence after the severe test of last year.

MANURES FOR GRASS.

Beneficial as drainage undoubtedly is, it was only regarded as a primary step in the improvement of poor neglected grass land. Dressings of manure followed the drainage, and have been renewed annually so far as was possible and in every available form. Niceties of distinction between different kinds of manure cannot often be indulged in to any great extent, and I have been glad to use farmyard manure, lime mixed with road scrapings, wood ashes, soot, crushed bones, specially prepared mixtures termed "grass manure," and in point of fact any artificial manure except nitrate of soda, which is too exhausting for our thin light soil. Nor is the lime and soil mixture applied twice to the same meadow without an interval of a few seasons' dressings of farmyard manure and sheep folding, upon which lime so applied acts as a mild solvent, converting the humus more quickly into that soluble condition which it must assume before the rootlets can absorb it.

Bone dust, as it is offered in commerce, has not been used, but half-inch crushed bones containing a good deal of dust has been applied with excellent effect at the rate of 4 to 5 cwt. per acre. This dressing is regarded as a provision for the future rather than the present good of the grass. The dust is probably beneficial in the first season, but the decay of the bones is so slow that it is only after the lapse of two or three years that their beneficial effect becomes apparent, and continues so for a long time. It does not, therefore, prevent in any way the continuance of annual dressings of other manures. As much manure from the cattle yards as can be spared from the arable land is applied to the grass annually at the rate of forty cartloads to the acre. Especial care is taken to have this well decayed in heaps before it is used. A bed of roadside trimmings or any good soil is first spread upon the site of each heap; the manure is then carted from the yards, thrown in a compact heap upon the soil bed, and at once covered with more soil. After laying for about a month it is turned over, the soil mixed with it, and a little more fresh soil again thrown over it as a "fixer," to prevent the escape of its fertilising properties into the air. The plan is an old and simple one, answering well if done carefully, but if due care be not taken in covering with soil or ashes much loss of its richest parts in the form of gas ensues.

Sheep folding upon grass has also answered well. For this purpose I usually procure some full-mouthed ewes at the great September sheep fair at Lewes, and the folding begins in the last week of September. The sheep are allowed to run free in the day, and are only confined to the fold at night; the space enclosed is therefore not large, small folds changed twice a week answering best. The best guide to the size of a fold is the eye, for if it is found that the surface of the enclosure is not tolerably well covered with manure in three nights it is too large. As a rough guide for beginners a space 4 feet square per sheep may be given as enough. The food used in the fold consists of linseed cake, oats, and hay. This is given chiefly at night when the sheep are shut in, but they are never let out in the morning till they have had some hay. I experienced some trouble in getting this attended to, and at first actually found the fold opened on snowy mornings without any thought of feeding the hungry sheep! Some rock salt is always thrown about for the sheep near the fold. In about ten weeks we begin drafting off the best sheep for the butcher, and by the middle of February the folding is at an end. Full-mouthed South Down ewes so treated make excellent mutton, which is much liked by those who are fond of the high flavour that only comes with age. The beneficial effect of the folding is seen early in the following spring, the luxuriance of the dark green grass presenting a striking contrast to the surrounding

growth, which presents a comparatively dwarf starved appearance.—EDWARD LUCKHURST.

PAYMENT OF PRIZES AT POULTRY SHOWS.

FROM time to time complimentary letters appear in our columns and in those of our contemporaries upon the prompt payment of the prizes by the managers of this or that poultry show. Prompt settlement of all such accounts is highly desirable, and deserves commendation. The exceptional eulogies, however, which such cases evoke in some degree call attention to the fact that such promptitude is by no means general—we might almost say that it is rare. The show season is coming on, and there has not, as far as we are aware, of late been any special case in which complaints of tardy payment have been heard; this therefore seems a fitting opportunity to say something on the subject. Had there lately been any outcry of clamorous creditors against some particular committee we should have hesitated to make what might have seemed personal observations. There may in particular cases be excuse or palliation for delay, and were such instances isolated we should not call attention to them. They are, however, common, and taken generally are a legitimate subject for criticism. We are not concerned with cases of real default. Of such we have of late heard nothing, but of habitual procrastination in sending out cheques and post-office orders for the prize money.

In most schedules a rule is formed to the effect that payment of entry fees must accompany the entries. Such a rule seems absolutely necessary for any proper and orderly system of accounts. We had always imagined that it was universally and rigorously carried out; but it has lately come to our knowledge that this is by no means the case. Numbers of exhibitors send entries without any fees at all, trusting to luck to win their amount in prizes; and, what is much more remarkable, such entries are commonly received. This is the result of an evil upon which we have frequently written—viz., the over-multiplication of shows, which makes it a hard matter now to make any show pay. Every entry is then of the greatest importance to the balance sheet, and secretaries do not refuse any. In one schedule lately sent to us the public are informed that this year entry fees must positively be paid beforehand, as last year a large number of them were never paid at all. This difficulty of prepayment surmounted, or rather we should say this folly of accepting entries without entrance money being discarded, there is hardly any undertaking of which all the receipts more certainly precede the disbursements than a poultry show; surely, then, there is no reason why the latter should so frequently be delayed for weeks and months. These delays have, as far as our experience goes, much increased of late. We do not remember having in former years been obliged so constantly to remind secretaries of their official debts. In some cases, and that too of no obscure or local shows, it would seem as if time was always given to the winners to forget their prizes. If they did so, or went abroad, or changed their residence, there would be so much gain to the show, or for somebody. If they send a reminder there is always a specious excuse for the delay ready; theirs is the only cheque delayed, or it has been lost in the post.

We do not for a moment forget that there are many admirably managed shows in which the accounts are kept as well as possible and prizes are paid with wonderful promptitude. The committees of some of them now advertise beforehand that the prize money has already been lodged in such-and-such a bank. This is an admirable plan by way of guarantee; it always gives confidence to the public and so increases entries. If the prizes are to be paid—and of course the managers of every good show intend that they shall be paid even at personal loss to themselves—it surely cannot involve any risk to them to pay down a few pounds each by way of guarantee before the exhibition takes place. There may be, however, places where previous experience of success warrants something being trusted to the sum paid at the door by visitors to the show; this, however, can be easily added up on the evening afterwards. All will then have been paid, and if its amount does not make both ends meet the promoters have to suffer. They will not suffer any the less by delaying a month or two about paying up; in all probability any show they may in future undertake will suffer the more from confidence lost.

We write chiefly in the interest of beginners, or at least of beginners in exhibiting. There are many ardent fanciers who love their birds, and breed good ones too, but who only exhibit now and then; they might certainly be encouraged to exhibit more. Trouble and vexation about the slow payment of prize and sale money often discourage them till they cease to exhibit altogether. Several such have complained to us that even sale money

is often long withheld, and we know their complaint to be true. Not long ago a lady fancier with superb birds was regretting that she could not sell them for half their value, as she had no name in the exhibiting world. We advised her to show them at one of the greatest shows with a moderate price upon them, where the public could easily see their merits for themselves, and would assuredly become purchasers. "Ah," was the reply, "I once did so; all shown were sold, but it was three months before I got the money, minus 10 per cent., which had been paid at the moment. I had rather take less and receive it at once without so much trouble." In the interest of such fanciers we call attention to the subject before the great shows come on, and, we are sure, none the less in the interest of the shows.—C.

VARIETIES.

THE BIRMINGHAM CATTLE AND POULTRY SHOW.—The prize lists for the forthcoming Show of cattle, sheep, pigs, roots, corn, and poultry, to be opened at Bingley Hall on Saturday, November 27th, under the auspices of the Birmingham Agricultural Exhibition Society, have been issued, and may be obtained, together with certificates of entry for the various departments, from Mr. J. B. Lythall, the Secretary. The Council have proceeded still further with their good work of encouraging early maturity by again reducing the limit to the age up to which the cattle can compete in most of the classes. They have also thought that the time has arrived when some of the larger prizes might be reduced, now that the animals can be shown both at Birmingham and Smithfield.

— **THE IRISH HARVEST.**—The Dublin correspondent of the *Daily Chronicle* sends the following review of the Irish harvest, made on excellent authority:—"The cereals are much superior both in quantity and quality to those of last year, while Potatoes, Turnips, and Mangolds are fourfold more productive and abundant. Hay is better saved, and more profitable and plentiful. Fruit also has generally proved a good crop, with the exception of Apples, which are almost a general failure, the early frosts having destroyed the blossoms. Peas, Beans, Cabbages, and all other vegetables have also yielded large and remunerative crops, although in some districts they were injured. It is a strange peculiarity of the year that Mushrooms are almost unknown. The yield of Wheat is so great that though the area under it is small the farmers' profits will be greater than when double the area was devoted to it. Its average yield is eight "barrels" to the acre against five last year. Of Oats the yield is from eleven to eighteen "barrels" per acre; last year it was only eight to ten. The yield of Barley is much greater than last year, and the grain is of sounder quality; but there is more than the average of small grain or screenings in each sheaf. The Potatoes are the best crop known since 1842, and the Champions are universally acknowledged as a boon to Irish agriculturists, having in almost every locality proved free from disease. There is as yet but a small proportion of them in the markets, the people endeavouring to keep them for seed. Flax was more sown this year in the south than hitherto, and the fibre has proved of such excellent quality that it will probably induce the farmers to invest more extensively in it; yet in the north it has not proved so satisfactory. The price this year is from 5s. 6d. to 8s. 6d. per stone, which is considerably less than that received last year. The most remarkable feature in this year's crop is the extraordinary yield of grass seed, which is not only an abundant one, but the seed is of such a good quality as to secure the high figure of from 15s. to 17s. per cwt. for perennial, and 11s. to 16s. for Italian."

— **THE AMERICAN GRAIN TRADE.**—Some idea of the grain trade with America may be gathered from the fact that in the month of August more than thirteen million bushels were shipped from New York alone, and that no fewer than 325 vessels were either wholly or partially engaged in the trade. The shipments for September were expected to exceed fifteen million bushels, and as the profits are about equally divided between the shipowner and the shipper the importance of the trade is apparent.

— **WHEAT SOWING.**—On all soils rich in manurial condition early sowing invariably produces the best results; it is also desirable on economical grounds, as effecting a saving of seed; and in the

case of Clover leys sufficient time should elapse between ploughing and sowing to allow the crude chemical constituents of the decaying vegetable matter to assume new and more useful forms, which may readily be assimilated without danger to the infant plant. In our extended wanderings during the autumn we were particularly impressed by the very differing appearance of the crops on land similarly situated as to soil and locality, and, as far as we can judge, equal in manurial condition. In the one case the straw was weak and puny, the ears short, clumsily set, and narrow-chested, three corns being the greatest breadth; and in some cases one of these was only partially developed, while in the other the straw was strong and reedy, ears long and broad, many having five corns in line. From information obtained on the different farms we visited we attribute the marked contrast in a great measure to a judicious selection and change of seed. We are fully persuaded that sufficient has not been directed hitherto to this important point. A few shillings spent at seed time may result in a gain of pounds at harvest. In making the selection it is essential that the stock should be obtained from an earlier soil and climate than that on which it is to be grown.—G. M. (in the *Agricultural Gazette*).

— **PITTING POTATOES.**—A correspondent of the same paper observes:—"Potatoes should be pitted never more than 3 feet wide at the bottom, and brought up to a sharp apex; Wheat straw at least 6 inches thick up the sides, and then another length of 3 inches in thickness spread crossways on the top. The sides of the pits should be earthed-up to within 4 inches of the top, so as to thoroughly bind down the straw laid crossways. It is advisable to allow the pits to remain thus for three weeks, and then complete the earthing-up. The Potato stems should be laid in heaps alongside the pits, to be ready for use during severe frost; by placing them outside the earth covering almost no frost can touch them. During long-continued frost we have seen it necessary to use rank stable manure."

— **AGRICULTURAL PROSPECTS.**—The fine weather of the past week has enabled the greater part of the outstanding grain to be secured, but here and there a field of Barley is to be found in stook. Progress has been made with the Bean crop, but a considerable proportion of it will require field room for another fortnight at least. The late Barleys are found to have been damaged and discoloured by the recent rains; and the entire crop of Barley, which is undoubtedly a good one, has been more or less injured by the storms which have occurred at intervals during the latter part of the summer. With the exception of a few favoured districts, and more generally in Scotland, the reports of the Wheat yield show that the effects of a wide-spread prevalence of mildew had not been taken sufficiently into account by those who expected better things; consequently there is much disappointment amongst outsiders and some farmers, that appearances should have proved deceptive. Farm work is now progressing very favourably, and should fine weather continue Wheat sowing will be commenced in good season on clays and stiff loams. The Pea and Bean stubbles, however, are not very clean. Stock now require assistance in the shape of artificial food. Northern markets have improved, but in the midland and southern counties the trade is slow for stores of all kinds.—(*Mark Lane Express*.)

— **GEESE IN IRELAND.**—Geese, says a daily contemporary, appear to thrive well everywhere in Ireland, and the trade in them between England and the sister island is rapidly increasing. A kind of poultry census was taken two or three years ago, when it was shown that in Munster alone there were over 800,000 head of Geese. Ulster had over half a million, Connaught had 483,000, and Leinster 440,000. Altogether there were in Ireland no fewer than about 2½ millions of these birds, which, reckoned to be worth not more than 3s. each in the market, represented some £337,500, much of this property being in the hands of those who are content to share their cabin accommodation with the anserine protégés.

— **FARMING.**—There are some people, says the "American Cultivator," who seem to believe that farming is an accomplishment likely to come as an inspiration, that anybody who has failed in mercantile or professional pursuits has only to buy himself a few acres of land, a moderate stock of farming implements, go through the easy routine of planting, and then wait in the shade of his own

Vine and Fig tree for an absolute and sure harvest. It is hardly necessary to state that only such men as have never tried farming take this view of it. Those who have made the experiment, whether they have been successful or not, will tell you that Nature, though a good mistress, needs much coaxing, and will not be wooed by proxy. The farmer's life, with all its boasted independence, has yet its many disappointments, and is made up of constant watchfulness. He must know the signs of the sky and be able to judge of the season's progress. He must know something, if only in a rough practical way, of botany, chemistry, meteorology; and more than all this, he must work—work with head and hands, work in all weather, whether he feels inclined or not, for weeds will not stop growing, nor crops cultivate themselves to humour his idleness. Only such farmers as will accept these conditions can be successful, and only such men give dignity to the agricultural interests.

FIXING FOUNDATION IN FRAMES.

BEING in Kent for a few days' holiday, myself and son went by train to Sevenoaks, and inquired for the residence of J. M. Hooker, Esq., which we found. Mr. Hooker was at home and took us to his apiary, where we had the pleasure of looking over several of his stocks of bees. They were in fair order, and the combs were beautifully straight, no curling at the corners, as some have said, happened in theirs; he told me that he had fixed the foundation (Raitt's) in the saw cut in the top bar, and kept it about a quarter of an inch from each end and about half an inch from the bottom, and the combs were worked out splendidly. There was no other means employed to keep them straight; they were simply hanging from the centre of the top bar, where they were held perfectly tight. We assisted in taking off sections and extracting the honey from one stock that had given over forty sections, and altogether we passed a very agreeable afternoon among his bees, which just suited—A WARWICKSHIRE BEE-KEEPER, *Weston, Leamington*.

TREATMENT OF FOUL-BROODY STOCK.

I FOUND some time since that one of my stocks (Ligurian) had foul brood. Before the disease appeared the bees had been fed with syrup medicated with salicylic acid. The diseased cells are so scattered among healthy brood that to cut them out would be to destroy the combs. The combs, &c., have been sprayed with salicylic acid solution without producing any apparent effect. I have two black stocks, each of which is perfectly healthy and very strong, as is the diseased one. All my hives, frames, &c., are new. I should mention that there are no bees kept within several miles of my apiary. What is the best course of treatment under the circumstances? Has the apparatus for the cure of foul brood, described in the report of a conversazione of German bee-keepers, page 170, *Journal of Horticulture*, been tried in England, and if so what are the results?—OMEGA.

[At this advanced period I should advise, as the stock is very strong, that the bees be made into a swarm by shaking them from the combs on to a board upon which a propped-up skep stands. After twenty-four hours they might safely be transferred to a spare hive furnished with, say, six combs, to which they should now be confined for the winter. The brood in this way would be lost, but all chance of transference of contagion would be gained by the sacrifice. To save the brood the bees must for a time be separated, the queen going to the new hive while a detachment remains to act as nurses. When the outside air is low in temperature the considerable increase of surface brought about by division would cause, in my opinion, a greater diminution of vital energy and breeding power than could be compensated by the addition of all the bees obtainable by the hatching of the amount of brood the stock could now be supposed to possess.

It is during the breeding season that foul brood makes headway; and were it not that other stocks, your own and those of your neighbours, are likely to suffer from the continuance of the disease in their midst, we should rather counsel discontinuing feeding, and removing the brood combs as the bees hatch from them. These can either be destroyed or treated, as every diseased cell now declares itself. During the depth of winter all will remain *in statu quo*, and with returning spring you may find the stock free of disease. If, however, it should again manifest itself the weather will be in favour of your dealing with it.

I have used a home-made form of the German vaporiser in a case of undoubted foul brood which had made but very slight progress. The salicylic acid was put into a tinned iron vessel

somewhat like an ordinary retort with very short leading tube. The latter was passed through the opening in the quilt into the hive containing the whole of the combs, which were placed fully double the normal distance apart. The salicylic acid was vaporised by igniting methylated spirit in a small iron dish beneath the retort. In a short time the bees were returned to the combs and the operation repeated after a few days (about five). In addition all the grubs attacked were removed by a small stiff sable brush dipped in salicylic acid solution. The disease disappeared.

The only precaution seems to be rendered necessary by the inflammable character of salicylic vapour. It burns almost like olefiant gas. The vapour as it enters the hive diffuses, and cools and condenses into minute crystals, which are wafted like dust moats into every crevice and cranny, and penetrate the whole hive in a manner much more complete than could be effected by spraying. The vaporised acid is extremely suffocating, and if inhaled causes slight chest pains for some time after.—F. CHESHIRE.]

COTTAGE BEE-KEEPING.—No. 6.

AFTER the lapse of several months I resume the subject of cottage bee-keeping where I left off. I brought my simple instructions up to a point which might well be postponed, as all I had left to say had chiefly to do with autumn preparations for coming winter.

If what I said in April has been attended to, all hives of bees intended to stand over as stock for the future will be now in first-rate order. After such a summer as we have had in these parts there cannot be a poor stock of bees that requires any considerable feeding; still, as these remarks may be read where the honey harvest has proved a failure, let me advise every bee-keeper who has any reasonable doubt as to the sufficiency of food in any of his hives to lose not a day in giving them what they require. For my own part I like to make assurance doubly sure, and always make a point of giving my hives all round a pint or so of strong syrup when the last warm days of the waning autumn are come. Then the bees will not have far to seek their food if any lengthened period of sharp frost should set in. How often does it happen that a hive well supplied with food in the remoter parts of the combs is found to have perished because the poor insects were too chilled to fetch it into their central nest? Now whatever is given them in late autumn is sure to be stored in their very midst.

As for modes of feeding, there are all sorts of ingenious devices in use, but none is simpler or better than top feeding over the central hole. Any kind of wide-necked bottle inverted over this hole will answer the purpose. A bit of lino should be tied over the mouth of the bottle, and then set the latter just over the hole with a bit of perforated zinc between it and the bottle. I hold a small jug or cup in my left hand, and invert the bottle into this first to catch any of the syrup which the sudden jerk may dislodge from the bottle, and when it ceases to drop it is quietly put over the hole. If there is no central hole at top of the hive (as in the case of the common skep) a deep soup plate full of syrup and covered thickly with straws can be set under the hive in a shallow cke of straw or hoop of wood, which must be the exact size of the skep. A pound of syrup or more can be thus given every evening after a warm day with the least possible trouble.

We are now come to the time when all extensive feeding should be in full operation; let not a day be lost. As for the supplementary feeding just referred to, it may be postponed to the last week in October, or even in mild situations till the beginning of November.

Let me again earnestly recommend a saving of all bee life by driving out the populations of all stocks that are going to be plundered, and joining them to the nearest stock to the right or left of where they stood. I gave full instructions how to do this last April (page 287), and need not repeat it here.

And now a few words about the wintering of hives. See that they are each and all thoroughly clean and dry, free from all cobwebs and woodlice, and warmly covered with any available material which will effectually keep off drip and damp. Hives are well wintered on their summer stands if proper care is taken to protect them from damp and high winds and the attack of their various enemies. None of the latter are more injurious than mice, and as these vermin can most easily enter any straw hive we have found in this one evil a sufficient reason for the disuse of straw; but care must be taken that all entrances to hives of straw or wood are so narrowed as to allow in the dead of winter for the passage of only half a dozen bees abreast of one another, say $1\frac{1}{2}$ inch wide and not more than three-eighths of an inch deep.

The other day I mentioned the case of a Dartmoor woman who plastered up her bees during twelve weeks or more from the latter part of December to the middle of March. Without exactly

following her example, which would be fatal in mild winters, I nevertheless shall take a hint from this good woman's practice, and I mean to prevent my bees from stirring abroad during all times of frost and snow and whenever cold and strong uncertain winds prevail. A simple block of wood the exact size of the entrance will be thrust in at dusk in the evening, with only a few tiny holes in the block covered with perforated zinc. Care, of course, must be taken to remove them on fine warm mornings at all times, and finally in the early spring according to the season. There are also many treacherous days during a continuance of stormy weather in March and even in early April, when they may be kept in for several days together, provided sufficient ventilation through perforated zinc is allowed them. At such times the loss of life in an apiary is very considerable. Thousands of bees have been blown away and chilled to death without a chance of their returning home. This accounts for the slow progress of hives in many a stormy spring time, and for the gradual dwindling away of many a weak stock, which could not nurture sufficient brood to make up for the daily loss of its population.

I need only add that bees are best let alone in winter. The quieter they are kept the better. All that is wanted is to look at the hives now and then to see that all is right. Meanwhile, the bee-owner can get ready for the coming season—making his hives, and putting all that are empty into a state of thorough cleanliness and repair.—B. & W.

THE HONEY SEASON IN SCOTLAND.

HAVING our bees home from the heather I am now in a position to inform your apiarian readers of the honey season in East Lothian. The year 1879 will be remembered by all bee-keepers as the most unfavourable that could occur. There were few if any skeps made as much honey as would keep themselves during the winter; in fact here we had to feed throughout the summer to keep the bees alive, and again to feed liberally this spring. Those who neglected to feed have lost the whole of their stock. Those who did feed have been well rewarded for the trouble and expense by a return from the Heather beyond the average of many years. A great number of supers have been secured, and the stock well supplied with honey besides.

This spring was not at all favourable for bees; though dry, it was often so cold that the bees could not work, and there was not much honey to be had from the flowers. At the end of June and in July we had a large supply of honeydew from the Pear trees on walls and from Oaks and Beeches, which gave a great impetus to breeding and made up the stocks with honey, but when it was stored in the supers it had to be taken out in many cases before they were sent to the Heather, its black colour injuring the sale of the Heather honey when mixed with it. Though the dark honey is good to the taste, we generally keep it here for feeding the bees in autumn and spring. Breeding had ceased in most of the hives before they left the Heather, as it had become rather cold. They are well stocked with bees, and most of them have begun breeding again since they were brought home owing to the fine warm weather we are getting. I don't expect more than 1s. 6d. per pound will be given to the bee-keeper for honeycomb in supers, the purchaser taking it away and selling it to the merchants. There is not much run honey sold here. Every endeavour is made to get them to put it into supers at from 10 lbs. to 15 lbs. of honeycomb in each; better prices are given for it in that way than in any other.—ALEXANDER SHEARER, *Yester Gardens, Haddington, N.B.*

OUR LETTER BOX.

Incubators (Chicken).—Write to Messrs. Thomas Christy & Co., 155, Fenchurch Street, London. Our "Poultry Book for the Many," price 6½d., post free, contains concise and reliable information on the different varieties of fowls and their management.

Fowls with Diseased Livers (S. P.).—The fowls are evidently suffering from disease of the liver, which at length kills them. This is often hereditary in poultry. Drive them out of the yard into the field. Keep them short of food, feed three times per day scantily. Let the fowl be ground oats or barley meal, slaked with water, and scattered abroad on the grass. Kill all the old diseased birds. Save the healthy and promising hens and pullets. Do away with all the cocks running with them, and turn in fresh ones in December. This disease often arises from overfeeding, especially with meal.

Spaces between Bars and Cover of Hives, &c. (Comber).—Half an inch space is decidedly too much to allow. A quarter of an inch is ample distance, as the only object of any space at all is to prevent crushing the bees when manipulating the bar-frames. The quilt will not inconvenience the bees, they simply avoid it. We have seen a quilt removed with hardly a bee upon it.

Keeping Honey (Idem).—Glass supers more or less filled with honeycomb will be best preserved by covering the mouth with a bladder or paper dabbed in white of egg—anything in short, that will keep the air from the contents. We have kept honeycomb in this way for a twelvemonth.

Pit for Stable Manure (T. C. A.).—There is no necessity for a tank for in the event of making a covered dung pit the liquid manure will be absorbed if led into it, and will prevent the dung from getting too dry, and with 8 or 10 inches of dry earth at the bottom the urine will be absorbed, and all may be taken out together. The pit may be made 12 feet wide, 15 feet long, and 3 feet deep, but it may be sloped off at one end for a cart to back into on the removal of the dung, &c. The covering may be of galvanised corrugated iron on pillars 7 feet up to the eaves, the covering to be 14 feet by 20 feet and spouted. The pit and covering may be made one-third less if the pit is cleaned out frequently.

Various (I. H.).—1st, In strong land pastures lying flat, if there are no small rushes amongst the grass, underground drains may do injury; only a surface trench or two would be sufficient. If, however, the strong land really requires covered drains, they should not be put in at a less depth than 3 feet and 2 rods apart, or perhaps placed at that depth, may answer by following the surface trenches if there are any, tiles not to be less than 2 inches in diameter. 2nd, Earth floors for horses if properly laid with dry screened earth rammed down with an iron-headed hammer will become nearly as hard as stone in a box where the horse is loose, and if the litter and dung are removed every day the earth will then last for years without renewal. If, however, the horse is tethered in a stall with earth floor properly rammed down on a dead level, or with a little fall towards the manger, the urine will then spread over the floor, and sink in equally over the surface, but the horses' shoes or feet will not disturb the surface; under any circumstances the earth in stalls will have to be removed when it is fully saturated and gives off offensive odours in the stable. 3rd, Concrete floors for cattle will do very well without litter, but better with litter; a pit behind the cattle with a spalled floor over will take everything away without inconvenience if swept daily and strewed with gypsum, but earth or ashes should be placed in the pit every few days for absorption and for deodorising the manure. 4th, The thatcher's knife recommended is rather hook-shaped, and is used by them for cutting the eaves of thatch. A hay knife will not answer the purpose so well, unless the truss of straw is held down on a board to receive the edge of the knife after cutting through the straw. The articles in the Journal should be referred to for further details on these subjects.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1880. Sept. Oct.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sun. 26	30.165	61.3	59.0	N.E.	58.2	66.2	54.0	87.7	48.6	
Mon. 27	30.306	58.5	57.6	S.E.	58.2	69.7	56.2	99.0	51.2	
Tues. 28	30.452	54.3	54.3	N.	57.9	69.7	50.4	94.3	45.2	
Wed. 29	30.489	53.0	52.6	N.E.	57.5	65.7	51.1	101.0	47.2	
Thurs. 30	30.405	54.5	53.4	N.	57.1	62.0	46.2	68.0	42.1	
Friday 1	30.271	54.9	53.9	N.	56.8	63.3	50.2	98.0	48.3	
Satur. 2	29.939	58.3	54.7	W.	56.6	66.3	51.1	48.4	46.2	
Means.	30.290	56.4	55.1		57.5	66.1	51.3	92.3	47.0	

REMARKS.

26th.—Very misty, canopy of cloud all day; calm and close.
 27th.—Hazy, good deal of cloud, but some bright sunshine in forenoon; calm and warm.
 28th.—Fog in morning, afternoon clearer with sunshine; fine evening.
 29th.—Misty early, fine bright warm day; misty again in evening and cooler.
 30th.—Fair calm day, with good deal of haze.
 1st.—Misty morning; fine bright day.
 2nd.—Early morning fine and bright, cloudy after 10 A.M., rain and wind after 3 P.M.
 Temperature very similar to the previous week, but the air damper, although there was little actual rain.—G. J. SYMONS.

COVENT GARDEN MARKET.—OCTOBER 6.

OUR market is now very quiet, prices remaining without any alteration. The supply of Pears from the Continent is short, though values are somewhat lower. There are large arrivals of American Apples this week.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons.....	each	2 0 to 4 0
Apricots.....	box	0 0 0 0	Nectarines....	dozen	2 0 8 0
Cherries.....	½ lb.	0 0 0 0	Oranges.....	¾ 100	0 0 0 0
Chestnuts.....	bushel	12 0 16 0	Peaches.....	dozen	3 0 10 0
Figs.....	dozen	0 6 1 0	Pears, kitchen..	dozen	0 0 0 0
Filberts.....	½ lb.	1 3 1 6	dessert.....	dozen	2 0 4 0
Cobs.....	½ lb.	1 3 1 6	Pine Apples....	½ lb.	1 0 3 0
Gooseberries...	½ sieve	0 0 0 0	Plums.....	½ sieve	2 6 4 6
Grapes.....	½ lb.	0 9 3 0	Walnuts.....	bushel	0 0 0 0
Lemons.....	¾ 100	12 0 18 0	ditto.....	¾ 100	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	dozen	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	pound	0 2 0 3
Beans, Kidney....	½ lb.	0 0 0 6	Onions.....	bushel	3 6 5 9
Beet, Red.....	dozen	1 0 2 0	pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	6 0 0 0
Brussels Sprouts..	½ sieve	1 9 2 3	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Pears.....	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	¾ 100	1 6 2 0	Kidney.....	bushel	4 0 0 6
Cauliflowers.....	dozen	0 0 3 6	Radishes.....	doz. bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 0
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzonera.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	0 0 0 0
Fennel.....	bunch	0 3 0 0	Shallots.....	¾ lb.	0 3 0 0
Garlic.....	½ lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 6 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 2 0 0



14th	TH	Sale of Orchids and Anthurium Andreanum at Mr. Stevens'
15th	F	[Rooms, King Street, Covent Garden.]
16th	S	
17th	SUN	21ST SUNDAY AFTER TRINITY.
18th	M	
19th	TU	Sale of Nursery Stock at Bedford by Mr. H. Pulley.
20th	W	

A CHAPTER ON CHISWICK.

HERE is always something to be seen and learned in the Royal Horticultural Society's Gardens—something either new or useful—some hints or suggestions that may be profitably turned to account in other gardens; hence, without further preamble, I submit these notes.

DAHLIAS.—Worthy of notice at the present time is a trio of new Bouquet Dahlias, which are not only very distinct from other varieties in cultivation, but possess considerable decorative value. The first to notice is *A. F. Barron*, a bright clean sulphur-coloured flower, deepening to yellow in the centre. All the florets are quilled or incurved in the most regular manner, their interior being yellow, exterior sulphur. The flowers are about $2\frac{1}{2}$ inches in diameter, and being freely produced they have a fine contrasting effect with the foliage. *Deutscher Reich* is a remarkable flower, all the florets being distinctly three-lobed and slightly incurved. The prevailing colour is rich scarlet with a bronzy yellow under surface, which appears to stain through, and it shows very clearly on the point of each floret. The trio is completed by a variety named *Zogling*, a well-formed flower, peculiar by the outer florets being of a flesh pink colour, those in the centre being orange, imparting a novel appearance to the flower. These and some other varieties were sent to the Gardens by M. Deegen of Zurich. Although they do not possess the properties of high-class florists' flowers, they combine novelty with attractiveness, and are highly suitable for border decoration.

RICINUS DUCHESS OF EDINBURGH.—In a large bed on the lawn this *Ricinus* appears the best of several varieties on trial. The foliage is very dark, indeed precisely of the same colour as *P. Gibsoni*, but the plant is of larger and more stately growth than that variety, and for subtropical purposes is very effective.

HELIANTHUS ORGYALIS.—This old herbaceous plant grows 8 feet high and bears small clear yellow flowers. The foliage is very long, narrow, and drooping, and even when the plant is not flowering it has a very elegant appearance. As a bright late autumn flower for associating with shrubs by the side of carriage drives this species is worthy of notice. It is known also as *H. angustifolius*. It is a native of Carolina, and was introduced in 1789 by Thomas Watson.

AZALEAS.—A number of these valuable spring-flowering plants are in splendid condition, the result chiefly of their having been planted out during the summer in a bed of peat and leaf soil. They have recently been taken up and potted,

and have not "lost a leaf." Had they remained in pots all the summer it is not possible that they could be in their present satisfactory state. They were planted in a pit, and had the benefit of the glass lights for a short time, but throughout the summer the lights were removed night and day. A pit is no doubt an advantage, but planting out Azaleas in a prepared bed of soil in the open ground was practised with great success by Mr. Gower in the Tooting Nurseries, and there is little doubt that this Continental system might be adopted with excellent results in many gardens. The rich dark green insect-free foliage of the Chiswick plants, with the bold well-set flower buds, show conclusively the value of the mode of culture to which they have been subjected.

FRUIT.—This is nearly all gathered and stored in the capacious fruit room. Pears appear the most numerous, and are generally finer and cleaner than the Apples. There are a few very fine examples of the *Souvenir du Congrès* Pear that have been produced by a bush tree. The quality of the fruit is very good, but not quite equal to Williams' *Bon Chrétien* when in its best condition, and not equal, too, to another Pear about as large as *Souvenir du Congrès*—namely, *Vineuse*. In appearance this Pear is not attractive, but the quality is excellent—the best Pear in the room. *Beurré Hardy* is also now in season, the fruit being very juicy and possessing a honeyed sweetness. This Pear is a great favourite with small birds, which Mr. Barron states attack it persistently even before the fruit is ripe, and it is generally conceded that "birds are not bad judges of fruit."

The finest Apple in the fruit room is *Stirling Castle*, the grand symmetrically formed fruit showing with great prominence among perhaps a hundred other varieties on the central table. This is a kitchen Apple of great value, and for market purposes one of the best in cultivation. The most handsome Apple in the collection is perhaps *Uellner's Golden Reinette*, a fruit of medium size and in shape faultless. It is a dessert Apple of the King of the Pippins type, equal in quality, but much superior in appearance to that useful variety. *Cellini*, a free-bearing variety of good appearance and quality, is also represented by some excellent specimens. For home use this Apple is highly worthy of cultivation, but is less valuable for market purposes, as it is not a good traveller, showing as it does its bruises so prominently. It is a culinary Apple of the first quality, and "not bad" for dessert. Among the dessert Apples *Lucombe's Pine Apple* is attractive in appearance and of excellent quality when ripe during November and December; and there are good examples of a later, very distinct, and good variety, *Court Pendu Plat*. The flowers of this variety are late in expanding, and often thus escape the frosts of spring—a circumstance of some importance. The few Apples named may safely be included in all collections.

GRAPES.—In the large curvilinear vinery the crop is good. The berries are, perhaps, not quite so large as those of the crop of last year, but large enough to command the highest price in the market. Some of the Vines were prematurely defoliated by a sudden and severe frost last November, but they have not suffered to such an extent as might have been expected; some, indeed, do not appear to have suffered at all, while only on one or two is the injury they received apparent now. This proves pretty conclusively that those who are so unfortunate as to have mealy bug on their Vine leaves may remove them as soon as they assume their decided autumnal

tint, and thus remove a great number of the insects, instead of permitting the leaves to fall and the insects be left in the house. When the frost destroyed the leaves of the Vines in question they were quite green. The reason of the berries being so large last year was doubtless the result of the heavy rains of the summer and autumn. It is easy to water and mulch Vine borders, and those at Chiswick are liberally treated in this respect, but the majority of the roots of healthy octogenarian Vines are probably outside the border and extend to a great distance, and only the rains can give them adequate support. The fine Grapes of last year especially, and also this, prove to demonstration that Vines enjoy large supplies of water when the soil is well drained.

The young Vines planted last year in the long corridor have been more than once spoken of approvingly, and not a word too much has been said in their favour. They are in the most satisfactory condition; the fruit of Alicante is superb, and of Gros Colman very good; but the slight shanking of the latter on two or three Vines is a puzzle to all who inspect the house. There are a few Vines of Alnwick Seedling in this house that teach a lesson that cannot be too widely known. On every Vine of the other varieties the bunches are full and berries regular, half of those that set and more having been cut out. On every Vine of Alnwick Seedling the berries have failed to set. There is not a bunch "fit to be seen." All had precisely the same treatment, no artificial means having been resorted to in distributing the pollen. No doubt Mr. Barron could have produced a different result had he so desired, but he wisely left the bunches to share the ordinary natural treatment that suited the other varieties so well. He considers the Grape a valuable one, but it requires artificial aid in setting, and is worthy of it. Such aid, according to a report of his garden in the Journal, Mr. Bell of Clive House, who grows this variety so well, gives by an artificial distribution of pollen. It is important that this requirement of what is a valuable acquisition to late Grapes should be widely known, as many people have planted Alnwick Seedling who are not acquainted with its shy-setting character. At Syon House two Vines of it are fruiting, one having been received direct from Clive House. Both have set sufficient berries, but there were none to thin out. The results at Chiswick suggest the treatment that is requisite to have this fine Grape in satisfactory condition.

It may be mentioned that the remarkable condition of the Vines in this house is not due to an elaborately prepared border. Peach trees had been grown in the house for a number of years, and all that was done before planting the Vines was to spread 5 or 6 inches of fresh loam on the border, a little manure, and a sprinkling of half-inch bones, and trench to the depth of 2 feet. The Chiswick soil is evidently well suited for Vines, and had £100 been expended in making the border these young Vines could not have been in better condition than they are now.

VEGETABLES.—The largest space this year is devoted to Brussels Sprouts, which are grown from seed supplied by various firms. Probably all or nearly all the varieties, "strains," and "selections" in cultivation are represented. In due time, I presume, they will be officially examined and reported on, and it is not necessary to say more at present than that the plants generally are not buttoning well. This is not solely from any inherent fault possessed by the varieties, but the heavy rains following the dry period of August and September appeared to have forced the plants into a late and luxuriant growth, much resembling that of spring, when the tops commence elongating, and the side growths assume the open character of rosettes. Of Brussels Sprouts generally it may be said they cannot be grown in portions too open and exposed, overcrowding and anything in the form of shelter militating against the production of firm sound knobs.

The Egyptian Turnip-rooted Beet.—This Beet has lately been referred to in the Journal. It is grown largely at Chiswick with some of the long-rooted varieties. In quality the Turnip-rooted is the best of all, being the sweetest and most delicately flavoured, but some of the roots are not very deep in colour. By selecting roots of the best colour for seed-growing, produce of a uniform deep red might soon be insured. This is also the most productive of Beet, a greater weight of

roots of uniform and useable size being obtained from a given space than any other variety; and it probably exhausts the soil less than the stronger and deep-rooting varieties. The Egyptian or Turnip-rooted Beet possesses advantages not sufficiently recognised, hence this word in its favour.

Early Munich Turnip.—Early Turnips cannot be had too quickly in the spring. The variety named is decidedly the earliest of all. It is small, red, and flattish in outline. Grown by the side of all the approved varieties its precocity is apparent. For forcing, and the earliest crops in the open garden, it can scarcely fail to be useful, and in due time to become popular. It will no doubt shortly be included in all seedsmen's lists, and it is not unlikely that it will retain a position there for some time, which is more than can be said of all new vegetables.

COMPOSTS.—In one of the houses was a large heap of turfy loam, containing a liberal admixture of horn shavings. The fancy name for this fertiliser is, I think, Buffalo horn Manure. It was mixed like snowflakes in the soil, and the compost is found of great value for fruit trees in pots—indeed for all plants requiring generous food. The horn manure is a safe ingredient for mixing with soils, and its effects are quickly apparent, and at the same time long-lasting on the trees and plants to which it is applied. A heap of wood ashes may appear to some a very simple matter to allude to, but if it is worthy of having a place under glass at Chiswick it is worthy of being mentioned here. The value of a store of well-burnt garden refuse cannot be too strongly urged on all cultivators. At Chiswick all rubbish that can be burnt is submitted to the action of fire, and the residue is of great value. For Vines there is no better ingredient than wood ashes; for mixing with soil for plants generally it never fails to act beneficially, and for placing in drills and covering seed in the garden it has no equal for inducing free germination and promoting a healthy growth of the seedlings. If there are any who think a heap of wood ashes a mere trifle to dwell on, they may be reminded that those who attend to trifles of this nature are precisely those who achieve success; and, as a great man once observed, "Success is no trifle."—VISITOR.

THE ROSE ELECTION.

TEAS AND NOISETTES.

EVEN the great apostles of temperance must be delighted when they hear admirers of "the eup that cheers," and unfortunately often does the other thing, exclaim, "Well, after all there is nought so refreshing as a cup of tea!" And what says the Rose enthusiast to his special Tea? Is he the one whit behindhand in love for and admiration of the Rose Tea? I trow not. And truly, do we desire to see the queen of the parterre in her grandest attire, it is when she produces a really first-class exhibition bloom of these varieties. Not only is this production a beautiful sight for the eye to feast on, but the perfume of the Tea Rose is delicious and refreshing. Further, how tenaciously do these forms of our favourite flower retain their glories! how reluctantly do they yield them up! Here certainly, in this particular, the Perpetuals must hide their diminished heads. How rarely in them does the beauty of the day of gathering last to the following day! How few, if any, have ever dared to face the scrutinising glances of a judge at two succeeding exhibitions!

There is little question that were Teas and Noisettes better able to resist the influences of our somewhat ungenial climate they would be greater favourites than they now are; but they well repay the extra care bestowed upon them, and where tended carefully are often beautiful bloomers early and late. I have cut several very respectable blooms of Gloire de Dijon from a tree trained on a wall on the 1st of January, whilst a plant of Safrano that was in a corner of the garden in one of my former resting places often gave me many of its lovely buds before the Perpetuals were showing the faintest prospect of a future harvest.

In the present election the voters were not only limited to Teas and Noisettes, but they were also limited to general purposes. Practically, it seems to me, that you thus get really at the best varieties for general use. Each voter answers according to his own view, whether exhibition or garden; but the whole result shows us what are the most generally useful varieties. Anyway, I think all will agree that most of our best sorts are to be found in the first two dozen on our list, whilst the Roses that head respectively the thirty-six and the twenty-four polls are gems of

the purest water. The cream of these varieties has certainly floated to the surface.

In the thirty-six varieties poll Catherine Mermet heads the list, bearing out the remarks of one of the voters, who adds in a note enclosing his list, "I think Catherine Mermet quite the best Tea; it is excellent in every way, and hardly a bloom is produced that is not fit to show." Personally I would almost endorse his opinion were I not so devoted to the queen of the twenty-four varieties poll—Souvenir d'un Ami. Both are exquisite specimens, both fairly hardy, whilst a good bloom of either would be a great addition to any stand of any dimensions.

Only to new friends is it necessary to explain our table. The first column denotes the position of the Rose on the poll; then follows the name of the Rose, its character, raiser's name and the year of its introduction. Blanks occur here which I am unable to fill up; but I would here express my thanks to Mr. H. Curtis of Torquay for his kind assistance in supplementing many of my omissions. Then follow the columns A, B, and C, representing the number of first, second, and third-class votes each Rose has obtained, the simple letters being the amateur, and those with the asterisk the votes of nurserymen; the last column being the number of votes polled by all the voters collectively. Two Roses having an equal number of votes have their position settled by the number of first-class or second-class votes; if still equal they are bracketed together.

The following table represents the thirty-six varieties election:—

No.	Name of Rose.	Charac-ter.	Age.	Raiser's Name.	Ama-teurs.			Total.	Nurse-rymen.			Total.	Grand Total.
					A	B	C		A*	B*	C*		
1	Catherine Mermet ..	T.	1869	Guillot, fils..	13	0	0	13	13	1	0	14	27
2	Souvenir d'un Ami..	T.	1846	Belot Defou-gère	13	1	0	14	12	1	0	13	27
3	Devoniensis	T.	1838	Forster	12	1	1	14	12	1	0	13	27
4	Gloire de Dijon	T.	1853	Jacotot	9	3	1	13	14	0	0	14	27
*5	Marie Van Houtte ..	T.	1871	{ Ducher ? Levet ?	10	3	0	14	12	0	1	13	27
6	Niphetos	T.	1844?		8	4	1	13	11	1	1	13	26
7	Perle des Jardins....	T.	1874	Levet	3	6	4	13	5	6	2	13	26
8	Maréchal Niel	N.	1864	Pradel	12	1	0	13	12	0	0	12	25
9	Souvenir d'Elise	T.	1855	Mareet	8	4	1	13	6	4	2	12	25
*10	Rubens	T.	1859	{ Robert E. Verdicr	4	8	2	14	5	4	2	11	25
11	Souvenir de P. Neron	T.	1871	Levet	4	9	1	14	5	3	2	10	24
12	Jean Ducher.....	T.	1874	Ducher	4	6	4	14	1	6	3	10	24
13	Belle Lyonnaise	T.	1869	Levet	7	5	1	13	6	4	0	10	23
14	Madame Willermoz..	T.	1847?	Lacharme ..	4	5	3	12	7	3	1	11	23
15	Madame Lambard ..	T.	1877	Lacharme ..	4	5	4	13	4	6	0	10	23
16	Madame Falcot	T.	1858	Guillot, fils..	0	2	8	10	8	4	1	13	23
17	Anna Ollivier	T.	1872	Ducher	5	4	3	12	3	6	0	9	21
18	Céline Forestier	N.	1859	Leroy	2	3	3	8	4	8	1	13	21
19	Madame Margottin..	T.	1866	Guillot, fils..	1	5	6	12	1	5	3	9	21
20	Alba Rosea	T.	1855	Sarter	4	4	1	9	5	3	3	1	20
21	Madame Berard	T.	1873	Levet	4	5	4	13	1	5	0	6	19
22	Comtesse de Nadaillac	T.	1872	Guillot	4	4	2	10	3	4	1	8	18
	{ Madame C. Kuster ..	N.	1872	Pernet	6	2	3	11	0	5	2	7	18
	{ Triomphe de Reunes	N.	1857	Lansezneur	3	4	2	9	3	3	3	9	18
25	Homère	T.	1859	Robert	3	1	6	10	0	5	3	8	18
26	Adam	T.	1838	Adam	1	6	2	9	0	5	3	8	17
27	Mad. Hip. Jamain ..	T.	1869	Guillot, fils..	1	5	1	7	1	3	5	9	16
28	President	T.		American variety	0	3	5	8	1	1	4	6	14
29	Bouquet d'Or	N.	1872	Ducher	5	3	1	9	1	1	2	4	13
30	Boule d'Or	T.		Margottin ..	1	1	7	9	0	1	3	4	13
31	Madame Welsh	T.	1878	Mad. Ducher ..	2	4	1	7	0	1	4	5	12
32	Jean Pernet	T.	1848	Pernet	0	5	4	9	0	1	2	3	12
33	Marie Guillot	T.	1875	Guillot, fils..	0	3	3	6	0	2	4	6	12
34	Madame Bravy	T.		Guillot, père	3	2	0	5	2	3	1	6	11
35	Perle de Lyons.....	T.	1873	Ducher	0	0	9	9	0	1	1	2	11
36	Isabella Sprunt	T.		Sprunt	0	1	2	3	2	1	4	7	10
37	Lamarque	N.	1830	Maréchal ..	0	1	3	4	2	0	4	6	10
38	Innocente Pirola....	T.	1875	Wid. Ducher ..	1	2	1	4	0	4	2	6	10
39	Safrano	T.	1839	Beauregard..	0	0	3	3	1	1	5	7	10
40	Rêve d'Or	N.	1870	Ducher	1	3	2	6	0	2	1	3	9
41	Amazon	T.	1873	Ducher	2	0	1	3	0	2	3	5	8
42	Madame Canille	T.	1871	Guillot, fils..	1	2	2	5	0	1	2	3	8
43	Mad. de St. Joseph ..	T.	1846?		0	1	1	2	0	3	3	6	8
44	Moiré	T.	1844?		0	2	2	4	0	1	3	4	8
45	Comte de Paris	T.	1844?	Jardin de Luxembourg	0	1	3	4	1	1	1	3	7
46	Madame Charles	T.	1864	Damaizin ..	0	1	1	2	0	5	0	5	7
47	Comtesse R. du Parc	T.	1876	Schwartz ..	0	0	2	2	0	2	3	5	7
	{ Bougère	T.	1840?		0	2	0	2	1	0	3	4	6
	{ Souvr. de Mad. Pernet	T.	1875	Pernet	1	1	1	3	0	1	2	3	6
	{ Aline Sisley	T.	1873	Guillot, fils..	0	0	2	2	0	2	2	4	6
	{ Nareisse	T.			0	0	2	2	0	2	2	4	6
52	Mons. Furtado	T.		Laffay	0	1	3	4	0	0	2	2	6

* These Roses I find with both names, being in one place attributed to one raiser, in others to the other.

In all 120 Roses have been named by twenty-eight voters. Besides those tabulated, five other Roses obtained five votes; eight mustered four votes each; nine secured three mentions; thirteen have only two votes; and the honour of solitary notice is enjoyed by no fewer than thirty-three Roses out of 120; in round numbers one in five only received a solitary recommendation.

It will be seen that in this portion of the election the number of amateur voters and nurserymen are the same—fourteen in each; and the different value placed upon the Roses by the two different classes of growers is very interesting. Let us mark, for example, how amateurs appear to esteem Madame Berard, Jean Pernet, Perle de Lyon, Bouquet and Boule d'Or much more than the nurserymen do; while, on the other hand, the latter show a marked preference for Madame de St. Joseph, Isabella Sprunt, Safrano, and Céline Forestier. On the other hand, Triomphe de Rennes, Marie Guillot, and Moiré have the same number of votes from each class, and in the former the value of each vote is almost identical.

There is another point of great interest in the Teas, and that is their antiquity. The Hybrid Perpetuals are comparatively recent; few, very few, of those that have been tabulated in the election lists can go back twenty years. On the other hand, look at our present list. Out of fifty-two tabulated varieties nineteen are over twenty years of age, ten are over thirty years, and several are over forty years old. Indeed, if there were Rose exhibitions thirty years ago the Teas must have had it all their own way for beauty, the H.P.'s of that date being very third-rate according to our present notions. Often we complain of our H.P.'s being too thin. There are many blooms even of so grand a Rose as Charles Lefebvre that one would like to see with just a few more petals, but in the Teas it is often a complaint in the other direction—too much stuff, and under a breath of unfavourable times a somewhat churlish retort, "Well, then, I just won't open." Alas! this is too often the case. "Tis sad, 'tis pity; and pity 'tis, 'tis true."

The names of those who have kindly replied are these amateurs—Revs. H. B. Biron, E. P. Wellings, G. P. Hawtrey, and C. H. Bulmer; Messrs. I. T. Strange, W. Mount, J. H. Arkwright, Alfred Evans, W. Corp, J. Mayo, T. Laxton, Geo. Baker, Joseph H. Pemberton, and a lady, "A. M." Those of the trade to whom we are all indebted for their opinions are Messrs. Cranston & Co., George Paul, Keynes & Co., Curtis & Co., C. Turner, Davison and Co., George Prince, Rumsey, H. Merryweather, Ewing & Co., Mack & Son, Francis & Co., John Mattock, and Thos. Bunyard.

To all of these helpers I tender my grateful thanks. Next week I hope to give the twenty-four varieties poll, and to add also a list from our friend Mr. Ellwanger of New York for comparison.—JOSEPH HINTON, *Warminster*.

OLD v. GILBERT'S VICTORY OF BATH MELON.

ALL who have grown Gilbert's Victory of Bath Melon were, I should imagine, rather puzzled at the description given of it by such a practical man as we have every reason to believe Mr. Pettigrew to be. What he really described on page 326 was Gilbert's Netted Victory, and this he has confounded with the "improved" form of Victory of Bath, for which Mr. Gilbert is also accredited. When I first received the Netted Victory I was very much in hopes that it would be a netted, and, therefore, a really improved form of Victory of Bath. This was, I must admit, altogether supposition, as there was nothing to encourage the idea on the seed packet; and if Mr. Pettigrew still has his original packet, he, doubtless, also will find this to be the case. At the same time the name selected is misleading, and has had the effect, I believe, of causing many to be prejudiced against what is really a well-flavoured and very distinct Melon.

With regard to the identity of the two older varieties I may mention, that having also noticed the remarks on page 292, I alluded to them in my correspondence with an extensive and skilful Melon grower, who is also what but few gardeners are—a great Melon eater. He says there is a "very great difference," and that "Gilbert's are not such good doers; the fruit are smaller, with shorter footstalks, and the rind thicker than is the case with the old Victory of Bath. The latter is also nicely netted when well grown, but although of better flavour in the first instance, the fruit does not keep good so long after being cut as does Gilbert's variety." This to a certain extent agrees with Mr. Pettigrew's description of the old variety.—W. IGGULDEN.

FUNGI A RESULT, NOT A CAUSE OF DISEASE.

"It is a singular fact that fungus is so often said to cause disease. The Potato disease has repeatedly been attributed to it, so has Peach blister, and now we are told that it gives rise to the shanking of Grapes. In every instance the idea is erroneous." I have copied the foregoing from the beginning of my note on page 206, in order to make it quite plain to "S." that my statement was only "general" so far as it refers to these three forms of disease, and not by any means so sweeping or comprehensive as he appears to suppose. As to what I have advanced being merely "the unsupported opinion of one individual," the note of "AN

INTERLOPER," on page 333, will serve to convince "S." that I am not quite alone in my views. This attempt to show that it is the action of the mycelium which causes the leaf-discoloration is quite worthless because he gives no reason for it. Long and close observation enables me to say positively that the disease never attacks the foliage till its legitimate functions are ended; and I may usefully inquire of our "fungologist" why the fungus does not attack the foliage till, as I once more assert, it has ceased growing and incipient decay has begun? Will "S." kindly give his authority for the statement that *Peronospora infestans* was unknown in this country before 1845?

From the example of Peach blister in a well-sheltered garden to which "S." alludes, I am afraid he is not a very close observer, or he would be aware how worthless are all ordinary forms of shelter to screen the tender foliage from the high north-eastern wind which sweeps over trees and walls around hills and corners in the most tantalising manner. Let me give an instance of this from my own practice, for I have plenty of them, enough perhaps to convince even my sceptical opponent. Some eight or nine years ago I planted a fine vigorous young tree of Dr. Hogg Peach against a south wall near the west end of a vinery, thinking then, as "S." does now, that such a sheltered nook would suffice for its protection. It grew freely enough and in due course filled its allotted space, but every spring it was so badly blistered that its spring growth was crippled, and not one dish of good fruit could I gather from it. At length it was decided to cover this particular length of wall with a glass lean-to house. Then what a change came o'er the scene! I could exclude the cold spring winds, and blister vanished never to return. Ever since then the Dr. Hogg, in common with the other Peach trees in the house, has continued in perfect health and yielded an annual crop of its delicious high-coloured fruit. At the present time no tree could be in a more flourishing condition, and I may confidently point to it as one of many reasons for my "positive assurance" in this matter. As to Mr. Taylor's trees, it would be rash to attempt an explanation without knowing the conditions under which they were exposed more fully, but I should be disposed to say that they were what I long ago termed hardy varieties; for there are undoubtedly some sorts of Peaches and Nectarines that are much less tender than others, and it was the discovery of this important fact which induced me to beg raisers of new varieties to select those that had been found not to blister for cross-breeding, in view of obtaining a still more hardy strain of these popular fruits.—EDWARD LUCKHURST.

FLORISTS' FLOWERS.

AURICULAS.—These might now be in their winter quarters. Mine have been there for a fortnight, but in ordinary seasons the second week in October is time enough. Care should be taken that slugs do not harbour themselves in or about the pots, and if any traces of them are found they should be carefully hunted for at night. Green fly should be brushed off and all dead leaves removed. It is not well to remove leaves, even the yellow, until they are flaccid. I have had but little autumn blooming on my plants. This I in a great measure attribute to their having been potted very late, later than I ever recollect doing them before. They will now require very little water. Coverings should be ready in case severe weather comes on. Cleanliness and a dry atmosphere are the chief points to be secured at this season.

CARNATIONS AND PICOTEES.—This has been a very favourable season for the layering of these beautiful flowers. Layers when well rooted should now be taken off and potted either singly or a pair in a pot. Where they are grown in beds the beds should now be prepared and planted, but not until the ground is dry and in good condition; these heavy and continuous rains will prevent this being done at present.

RANUNCULUS.—The Turban varieties hardly come under the designation of florists' flowers, but they make a very fine display in the spring months. They ought to be largely grown. The white variety Hercules, and an edged flower, Commodore Napier, more like a Persian variety, but very hardy, ought to have a place with the brilliant scarlet.

GLADIOLUS.—It will soon be time to lift the corms; indeed the smaller seedlings may be lifted at once, and the general collection towards the end of the month. I know of no better plan of wintering them than placing them singly on shelves, placing the base in dry sand. This, I think, prevents them from drying up so much as when placed on wooden shelves only. Unquestionably if the corms come much into contact with one another they encourage the emission of roots, which cannot be good for the future well-doing of the corms. I hope, in giving some account of my garden experiences during 1880, to give, as your correspondent suggests, a list of the newer varieties which I consider worth cul-

tivating, for some excellent varieties have been added to our lists both at home and abroad.—D., Deal.

THE INTERNATIONAL POTATO SHOW.

IN a communication in the *Journal of Horticulture* of September 30th "A GARDENER" comments on the Show generally, and criticises the twenty-four dishes of Potatoes staged from here. Your correspondent refers to two dishes of Potatoes, the first White Emperor. This lot of Potatoes was, in my opinion, without doubt White Emperor, but in this exceptional season larger than usual, and showing discoloration, because being large the tubers were forced nearer to the surface than others. Shape in tubers goes for nothing; scores resemble each other exactly, but differ only in colour or markings. White Emperor is just like Blanchard in form and outline, as it is like many other rounds. I had no reason, let alone desire, to put up a dish of anything that was not true to name. In staging the twenty-four dishes the White Emperor was the last; and before finally deciding I submitted to my brother, who helped me to stage dishes of Rector of Woodstock, Porter's Excelsior, and Woodstock Kidney, and he thought White Emperor the best. Does that look as if an impropriety was intended? Further, I had left after staging all the collections ten spare dishes of various kinds, so it is not necessary to say more on that point.

Early Ohio is next referred to. Why does not your correspondent lay the fault of the remarkable similarity of sorts at the doors of the raisers rather than at the feet of the growers? Early Ohio is of the Beauty of Hebron family, but has dwarfier haulm, and the average type is rounder. My stock came to me through Mr. Lye, who had it from Mr. Quincey of Peterborough, and I have found that it produces handsome tubers. I was enabled to select when lifted a larger proportion of sample tubers than from the Beauty of Hebron. I regard the Early Ohio as not only fine in appearance, but I have found on cooking it that it was with me quite before any others of the Early Rose type in quality. It was because of these features I was so anxious to show it in the collection.

In dealing with the seedling Potatoes "A GARDENER" speaks disparagingly of our Lord Mayor as having rather deep eyes. That is incorrect. It is not deep-eyed, and it is fine and handsome; furthermore, it is as Mr. McKinlay, who came down here to see it lifted can prove, a wonderful cropper, whilst its quality is first-rate. It is the product of a cross between the Early Rose and Fenn's Early Market.

In another respect your correspondent's notes are not quite accurate—namely, in the varieties that were largely shown, and in the best condition. In white kinds he includes Jackson's Kidney, though shown in only two or three collections; Pride of America, which is but another Snowflake, and Yorkshire Hero and Edgeott Seedling, both being Lapstones. Surely Magnum Bonum and King of Potatoes might have been included in the list. In red Kidneys Mr. Bresee was shown only in three dishes, and Defiance about the same; both are very fine and handsome I admit, but it is not correct to class them as being "largely shown." In coloured rounds he omits one found in almost every collection—Radstock Beauty, whilst Fenn's Cricket Ball has never been sent out and never will be.

Another critic, Mr. J. Muir, takes exception to the cooking qualities of certain Potatoes named by him. It is curious, but none the less true, that very many growers have written in high terms of the quality of Beauty of Hebron, Snowflake, American Purple, Climax, and Early Vermont. Does not this show, that if not in Wales at least elsewhere, these Potatoes may be good. I can but say that here they are all very excellent. May we never have to eat worse. In criticising quality, however, it must be borne in mind that many varieties have been sent into commerce that have given large crops with little or no disease. When those varieties Mr. Muir so much praises give one-half or two-thirds diseased tubers, as has been the case in previous years, we cannot afford to be too nice as to quality. Yet the less raisers do not forget the element of quality, but they have always had to contend with this obstruction, the higher the tuber quality the greater the proportion of disease. As to Mr. Muir's stricture upon the donor of the prizes for the best-coloured kidney entering for the same, the responsibility is mine and not that of my brother, Mr. R. Dean. The object of that, as other classes, was to bring out the best representative of the section that could be found. I believed Mr. Bresee, the new red kidney, to be the best, and staged it; the winning of the cash was of the smallest moment.—ALEXANDER DEAN, Bedford.

THE JAMAICA HURRICANE AND THE BOTANIC GARDENS.—A letter from Mr. D. Morris, published in *Nature* of the 7th inst.,

thus describes the effects of the recent hurricane last month:—"At the Cinchona plantation, besides damage to buildings and sheds of about £650, nurseries and seed beds have suffered so much as to reduce the stock of available seedlings from something like 500,000 down to 80,000. At the plantations vegetation is so literally swept away that only here and there can we see a standing tree. There is not a leaf left on either the indigenous or Cinchona trees. After a careful inspection we have estimated that 20,000 Cinchona trees of all ages have been uprooted, or so severely damaged that they must be immediately barked. Out of the small garden at Castleton, covering only about 5 or 6 acres, fifty-five trees were destroyed, and ninety-eight severely injured. Out of the trees severely injured—i.e., probably blown quite down and put up again with trimmed limbs and supports, I found the Para-rubber Mangosteen, Tonquin Bean, Cam Wood, Olive, Cinnamon, Nutmeg, East Indian Mango, Chocolate, Liberian Coffee, &c. Even if they live we shall get no fruit from them during the next season, and we shall be unable to supply plants in great demand for some time. The Parade Garden, Kingston, felt the hurricane greatly, but as we had nothing there except ornamental trees and shrubs, we hope to recover our losses soon. The Cocoa Nut plantation at the Palisadoes had sixty-one bearing trees blown down, and forty-one rather young ones just coming into bearing. The Old Bath Garden has also shared in the general injury. The fine old Cinnamon Tree, the Camphor Tree, and the Pinus are down. The King's House Gardens and grounds have fortunately escaped much injury."

TUBEROUS BEGONIAS AS BEDDING PLANTS.

I HAVE not known the value of the Tuberous Begonia as a bedding plant until this summer. Having been successful I trust a few cultural notes will not be out of place in your valuable Journal. During the season the Begonias in my estimation have far surpassed the scarlet Pelargoniums in general effect, and now (October 6th) there is not a bloom on the Pelargonium, yet the Begonias are as gay as at any time during the summer. All the plants bedded out were raised from seed sown on September the 2nd, 1879, and January 2nd, 1880. I find no advantage from sowing in the autumn, as the plants thus obtained lose their leaves and rest for six or seven weeks, whereas those from the January sowing have grown on without rest, and were when planted out (June 8th) quite as strong and forward as those from the September sowing. My mode of culture is to sow in heat early in January, and when the seedlings are large enough prick them off into pans or boxes 2 inches apart, let them remain in heat until the beginning of May, when they may be gradually hardened off and planted out at the beginning of June.

The chief secret of success is, after the seed is sown never allow the soil to become dry, and keep all insects from the young plants, for if allowed to become infested with aphides the plants will never thrive until that pest is destroyed by the usual means. If the summer is hot and dry the beds must have copious supplies of water, as I find the plants are very impatient of drought. I strongly recommend the best varieties for pot culture, but for bedding purposes the more common drooping varieties are most suitable. If the old plants are required for another year they can be lifted and kept similarly to Dahlias, but they should be potted as soon as growth commences in the spring. I may mention that we place the plants in the beds about 6 to 8 inches apart, as in that case they help to support each other.—JAS. CHILD, *Garbrand Hall*.

TWO KENTISH GARDENS.

NOT grand show places—not places presided over by a grand gardener versed in all the "ologies," and doing everything on scientific principles—not gardens resplendent in all the glories of bedding-out and carpeting on the most approved or most fantastic principles—but gardens which owe their origin and their present beauty to the loving care of the owners, who have brought to their creation the culture of well-stored minds, of an intelligent sense of real beauty, and of a most thoroughly artistic taste; where at every step you see some novel feature, some glimpse of real beauty; where, not as in some gardens, a few minutes enables you to take in the whole at a glance; but where for a long day you might delight yourself with the varied efforts of thorough taste and love of Nature in her best and brightest moods. These are the gardens of which I would now write; and when I say that one of them is that of Mr. Harrison Weir, all who know him or who have had the pleasure of reading his many contributions to the Journal, will at once be ready to believe that I write in no spirit of exaggeration.

It was on one of those lovely September days with which we have been lately favoured that I accepted the oft-repeated invitation of my excellent friend Mr. Harrison Weir, a name so dear to all who love animals, and especially to the boys and girls of England who have rejoiced over his loving sketches of their pets. The invitation was accompanied by a message from Major Horrocks that I would visit him on my way, and in these two gardens I saw much that would delight any lover of a garden, and where I learned much of interest and value to horticulture, and which I should be glad if I could convey even a portion of to my readers. No two gardens could possibly be more distinct, although they are both guided by the same spirit. One is on a dead level, where all the effects are due to art; the other stands on a lovely hill, whose undulations have done much for it, and whose surroundings are those of real woodland beauty. And although I can give but a very imperfect idea of them both, yet I may perhaps interest some of my readers and encourage others who imagine that unless their gardens are favourably placed by Nature it is vain to attempt to make a beautiful garden.

Mascalls, the residence of Major Horrocks, is situated in the parish of Brenchley (where, by-the-by, *Gladiolus brenchleyensis* was raised), about a mile from the Paddock Wood station of the South-Eastern Railway. The house is an admirable adaptation of an old-fashioned farmhouse to the requirements of modern life. The character of the house has been retained, and the additions which have been made to it have been most judiciously effected. A very handsome dining-room and other rooms have been built at the back, but the front of the house retains quite its old character. When, thirteen years ago, it came into the possession of its present owner, it was simply a flat field with only a few trees on it; and although farm and orchard had been well looked after, gardening had been little thought about. Major Horrocks' first interview with the gardener, who has been some forty years on the place, was not encouraging. "There, I don't want you to come here a meddling with me!" was the response to some observations he had made; and yet this rough diamond has proved a veritable gem, with an excellent eye for colour, arrangement, and form, and has been a most valuable assistant to his master in carrying out his plans. The first question to be decided was, of course, how to lay it out. The high road ran at the bottom about a furlong off. This must be planted out, the space between must be arranged: but how? Ordinary gardeners would have said, and friends did advise, placing a number of flower beds close by the house, on which to look from the windows. Not so thought Major Horrocks. He pushed all his beds into the distance, and had a wide expanse of lawn before the house. By this means the view is not shut in, air and light are about the house, and the eye rests on the shrubs and beds on the distant part of the lawn.

On entering the place from the road we are at once arrested by a bed on which were four fine plants of *Brugmansia suaveolens*, 6 feet high, and most conspicuous by their fine foliage and lovely white flowers. Then on this same side of the house, from whence there is not, nor can be, any view, there is a very remarkable piece of rockwork, on which are planted a large number of the best varieties of *Sedums* and *Saxifrages*; and plunged in their pots amongst these very profusely a large number of remarkable succulents, *Cacti*, *Azaleas*, &c., which make, combined with one or two other plants interspersed here and there, a very remarkable bed. On the side of the drive up to the house one *Agave* was planted singly in small beds surrounded with *Cerastium* or other small bedding plants; while on the side of the house *Abutilons*, *Clematises*, and many handsome plants contributed to hide bare walls and to add colour and beauty to the scene. In a shed close by I saw two large plants of *Camellias* which, owing to some freak, were now in full bloom to the great disappointment of the owner.

As it would be impossible for me to give in detail the various combinations which Major Horrocks has made to give beauty of outline and colour to his gardens, I will just note one bed which I have called the Artichoke bed. In the centre of the bed there is a clump of Pampas Grass surrounded by four plants of *Ricinus* with its bronzy leaves, and five plants of the large Poppy, *Papaver orientalis*, which flower in June and then die down, when their place is taken by the *Ricinus*. Between each Artichoke (the Green Globe variety) are three plants of the tall-growing *Ageratum*, then a circle of variegated *Iris* and an edging of London Pride, with some plants of *Geraniums* of various colours at the back of the *Iris*; then there is a row of *Crocus* between the *Iris* and the London Pride. It will be seen from this arrangement that a continuous filling of the bed is provided for, and that as the earlier-blooming plants die down their places are supplied by others. Then there is another bed with a variegated *Maple* in the centre, and with a mixed collection of plants round it, which

are to be replaced shortly by a collection of the many beautiful varieties of Maple which have been of late years introduced from Japan. The belt at the end of the lawn has been excellently managed. It was necessary to shut out the road, so Laurels and quick-growing shrubs had to be planted. A wide belt was made for this purpose, but the Conifers of various kinds which were to be the prominent occupants of the belt were judiciously planted, and a broad edge of flowering plants placed in front; but as the Conifers grow the shrubbery is thinned out, the edging of plants is removed, and the turf is brought close up to the trees, which then sweep over the lawn. But I think the greatest triumph of all is the piece of water and its surroundings. There is a rivulet which comes down from the hills above, and which, skirting the farm, has been diverted here so as to form a very ornamental piece of water. It would not do to have it on a flat, and so a large quantity of earth has been brought here, banks are made all round and planted with hardy herbaceous plants and interspersed with some half-hardy plants from the greenhouse. On the water floated the white and yellow water Lilies, while on a wee island in the centre there was a clump of the double-flowering Arrow-head, *Sagittaria sagittifolia* fl-pleno, which has sown itself on various places at the edge of the water. Amongst the plants used was the large-podded *Capsicum* with its brilliant red pods; this had an excellent effect dotted here and there over the banks. Now and then a bright bit of *Coleus* came in very effectively; and the effort had been made, not only to give a good general effect, but also to attract the eye with little bits of colouring which leave nothing to be desired in artistic arrangement. Then the trees, of which there are not many, are utilised, also creeping plants, *Aristolochias*, *Clematis*, &c., clothe their stems, while here is a standard *Jasmine* with a stem as thick as one's leg, and which must be very beautiful when its branches are clothed with their fragrant white flowers.

It might be supposed from all that I have said, and the quantity of plants that are used, that there must be a large number of houses wherein to shelter them, and I was surprised to find that only two, and they not very large ones, were required. Some of the hardier plants were sheltered in a shed, but the greater number were placed in these houses, which must be tolerably full when all are placed in it. Although no bedding-out in the strict sense of the term is practised here, yet bedding plants, *Pelargoniums*, *Coleuses*, *Calceolarias*, &c., are used to a good extent, and this involves propagation, which had been already completed; but I fancy that these will be less and less used, the desire of Major Horrocks being, as he expressed it, to get subtropical effects without subtropical plants.

I am writing about the garden, or else I should like to have said something about the orchard, which is one of the best examples of fruit culture I have seen for a long time, and where I saw more Pears than I have seen altogether this year in the places I have visited. And here, alas! I am at the length of my tether. I have only lightly touched on some of the many notable things in Masealls, and I have said nothing about Weirleigh; and there as I mount the hill I see the burly form of farmer Weir shaking his fist at me, and telling me that luncheon is waiting; so I must part company with Major Horrocks and his very interesting garden, and reserve my notice of Weirleigh for a future issue. —D., Deal.

WELLINGTONIA GIGANTEA.

IN your issue of the *Journal of Horticulture* for September 23rd, Mr. Moss, on page 283, refers to the remarkable growth of *Wellingtonia* planted in 1863, the circumference of which at 6 inches from the ground is 9 feet 7 inches. Your correspondent also apprehends the wood of the *Wellingtonia* would be useful for building purposes. The growth referred to is certainly remarkable, and if the wood were hard and durable it would be a very profitable tree to plant extensively; but within the last two years I have cut down four or five of these trees, ranging from 25 to 40 feet in height, and found when having their trunks sawn into lengths that the wood was very soft, coarse-grained, and spongy-looking. It also soon decays. The relative girths and height of these trees, although of the same age, is also remarkable—for instance, a tree 53 feet in height is 9 feet 6 inches in circumference round the trunk at 6 inches from the ground, while another 30 feet in height at 6 inches from the ground also girths 9 feet 6 inches, and another tree 51 feet in height at the same distance from the ground is only 8 feet in circumference round the trunk. As an ornamental tree the merits of the *Wellingtonia* are well known, and if planted on soil that suits it its fine pyramidal habit will make quite a feature. It will not flourish on poor, stony, shallow soil, but will become a fine tree on a deep rich loam. As an evergreen avenue tree it has a noble appearance. A straight drive here half a mile in length,

with trees each side from 30 to 50 feet in height, has a grand effect; a curved carriage drive similarly planted does not look so well.—A. HARDING, *Orton Hall*.

MORE ABOUT POTATOES.

I AM not surprised at hearing that those who grow largely for the market hold *Champion* and *Magnum Bonum* in high estimation. The object they have in view—namely, to grow those crops which will afford them the best return with the least amount of risk, has naturally led them, after the experience of the past few seasons, to select these varieties as meeting their requirements best; and, provided that the bad seasons continue, and that the growers mean to give in, confessing that the disease has defeated them, and that they must have poor Potatoes or none at all, such a course would seem to be the wisest.

I am not prepared to give up the fight in this way, nor do I believe in continual bad seasons. I have taken the trouble to make inquiries among the principal growers in this neighbourhood, and find that although for several years their patience and their pockets have been sorely tried, they have this season been rewarded with an extraordinary crop. The disease has been practically nil, and the yield of all varieties enormous. Potatoes are ridiculously cheap. The common varieties have, I hear, been sold for as little as 2s. 6d. per sack of 160 lbs., which is less than a farthing per pound. The present price ranges from 6d. to 1s. per 20 lbs.

The varieties most in favour among market gardeners here are for a first crop *Myatt's Improved Ashleaf*, followed by *Gloucestershire Kidney*. Nothing has yet been found to supersede these old well-tried varieties. From personal experience I can speak well of them. *Myatt's* slightly sprouted in heat, and, planted in the open ground without any protection in January, was fit to dig on May 26th. *Early Rose* does not seem to meet with general approval. There appears to be a prejudice against this Potato, owing to the pink tinge which sometimes pervades it when cooked. In wet seasons, or when grown on heavy land, this defect often occurs. I grow it largely and consider it a most valuable early kind. This year the colour is excellent, and some tubers grown on light peaty soil are as white as snow and floury to the centre. The crop is quite double that of *Myatt's* and perfectly free from disease. Many people complain of not being able to grow this variety on account of its being so liable to disease. Even in the worst of seasons I hardly ever lose any from it, as by planting properly prepared sets sufficiently early, it is all dug and eaten or sold by the end of June. But, then, this is Devonshire, and I live on the top of a hill, and have hardly ever known the frost cut my Potatoes, although down in the valley half a mile away they are frequently blackened in May. *Snowflake* is another variety almost discarded by market growers. Like other white-flowered first-class Potatoes, it is undoubtedly very liable to suffer in wet seasons; but it is a splendid Potato, almost without a fault besides, and there is none that finds a more ready sale or commands a higher price in the market. I have kept to it; and though last season I only had half a crop, this year I have been rewarded with a magnificent yield of the finest quality with scarcely a diseased tuber among them.

Late Rose is another good variety very little grown about here. I find it to be a grand cropper, a good keeper, and second only to such as *Snowflake* and the old *Lapstone Kidney* for quality. The yield is at the rate of 12 to 14 tons per acre, quite free from disease. It finds a ready sale, and, being beautifully white and mealy, gives general satisfaction.

Among late Potatoes *Magnum Bonum* and *Champion* are the present favourites. The crop of the former is enormous and quite free from disease. The quality is barely second-rate, but the appearance of the tuber is good and helps to make it sell well, though not at the best price. In my opinion it is neither a garden Potato nor a Potato for a gentleman's table. A friend who has a large establishment and grows a great many Potatoes for home consumption asked me a day or two since to have a look at his field where four or five men were engaged in lifting. The principal crops were *Rocks* and *Magnum Bonum*. The crop of the latter was excellent, but he said, "I don't like them, they are waxy and the flavour is poor." My experience of it, as grown in rather heavy soil, is the same.

The open market is the finest test of quality that exists. Buyers are always willing to pay a good price for a good article. There I find that among kidneys the old *Lapstone* and *Snowflake* always head the list, commanding the highest prices; and though the superabundance of inferior varieties affects the price of the best considerably, there is still a good margin between them and such as *Magnum Bonum*.

Scotch Champion has been largely planted here as elsewhere. The crop is large and almost free from disease. From what I see and hear it is likely to prove a useful stopgap until another novelty turns up with fewer faults. The markets tell a tale as to its general appreciation for table. All the talk in the world will not get over the stubborn fact that Victorias and Regents are making from £5 to £6 per ton, while Champions are being given away for £3 10s. "AN IRISHMAN," "W. J. M.," and Mr. A. Barker think that the true Champion cannot be fit to eat in August. Some of mine were planted at the end of January and were quite destitute of foliage by the first week in August, owing to the hot dry weather, after being six months and a half in the ground. Others planted in April have just been lifted (September 20th). Surely this is long enough for even the latest Potato to arrive at maturity.

Individual opinions as their being white and mealy must be taken for what they are worth. There are relative degrees of

both. I have seen a flock of sheep appear beautifully white against the green grass; but the next day, after a fall of snow, they seemed to have changed to a dingy drab. Put a few good Victorias or Snowflakes into a dish of Champions, and the same effect will be produced. As to their being always good, whether boiled or baked, this may be so; I have never denied it. Except for their being rather too solid and rather coarse in flavour they may fairly be described as good; but there are three degrees of comparison—good, better, best, and Champion must be content with the positive. But my object in making these remarks is to record my opinion that growers should be careful about giving up old well-established varieties, and taking to these coarse novelties merely from fear of the disease. In the report of the Crystal Palace Show I observe that many varieties are mentioned of which I have no experience; but I like, and no doubt most others do, to try a few promising novelties every season if possible.



Fig. 62.—BELLE JULIE PEAR.

It would be a boon if any disinterested person who has grown them would give their experience. Vicar of Laleham, Woodstock Kidney, Radstock Beauty, and Pride of America are repeatedly mentioned. Who can tell us anything reliable about them? —R. W. BEACHEY.

BELLE JULIE PEAR.

OCTOBER and November Pears are so numerous and so good that no one would be warranted in adding another variety to the already rich list unless such variety possessed really good qualities. Belle Julie is a great and certain bearer; the fruit is distinct from all others by its warm hazel-brown colour, and its flavour is excellent. Last year a pyramid at Chiswick was perhaps more heavily laden with fruit than any tree in the garden, and this year the same tree has produced another excellent crop. Tested with such varieties as Marie Louise and Louise Bonne of

Jersey, the fruit of the variety in question was at the least equal to either, and some judges thought it superior. This variety is described as follows in the "Fruit Manual":—

"Fruit medium sized, long obovate, even and regular shaped. Skin rather rough to the feel from the large russety specks with which it is covered. The colour is dull brown, somewhat like that of the Brown Beurré; and on the side next the sun it has a warm reddish-brown glow, like a gipsy's blush. On the shaded side, where the skin is not covered with russet, the green ground colour shows through. Stalk an inch long, brown, and woody, inserted on one side of the fruit under a fleshy lip. Eye clove-like, wide open, with long segments, and set almost on a level with the surface of the fruit. Flesh yellowish, tender, buttery, melting, and very juicy. The juice is rich, sugary, and vinous, with a fine perfume. A most delicious Pear; ripe in the end of October. This ought to be more extensively cultivated."

As was stated last November Mr. Barron has also a high opinion

of this Pear, indeed on account of its uniform productiveness and good quality he esteems it one of the most serviceable Pears in cultivation. It is in commerce, but not yet possessed in quantity by all nurserymen. The figure represents a fair example of the fruit as grown at Chiswick, and the variety is submitted as likely to give satisfaction to those who grow it.

CULTURE OF THE PERSIAN CYCLAMEN.

It is generally recommended to sow Cyclamen seed in the beginning of spring with the view of having flowers the following winter; but with a warm pit, greenhouse, or vinery, in which the young seedlings will not be exposed to frost, there is no particular reason why it may not be sown any time. If you have saved some seed it can be sown now. Any pan, shallow box, or flower pot will do, employing a compost of loam, sharp sand, and good drainage. Those who have but limited time and space, and often have not patience to wait a year for nursery seedlings, would do well to purchase the flowering corms when they are beginning to grow, and they will have flowers from Christmas onward. My plants in a rather warm moist plant pit are now a mass of flower buds, and the leaves are pushing rapidly. A few days since in Dublin a lady showed me a frame full of Cyclamen in various stages of development. The older tubers were resting in their pots previous to being repotted, and the seedlings of last spring were preparing to flower. If a lady thus, with only a few yards of a town garden, a frame, and a southern parlour window, can have Cyclamens so good there surely cannot be any great difficulty in their culture.

I should remark for the information of those who have no other appliances than a frame, that if they could put in some stable manure to make a hotbed, which would last, say, three weeks, supposing it to be only 6 or 8 inches thick, in that time the seed would probably be started if the temperature rose to 70° or 75°, and when frost appeared, say six weeks hence in Ireland, the seedlings could be removed to a parlour or warm sitting-room, kept moist, and transplanted in spring. Last year a friend of mine raised as healthy seedlings in this way as ever I saw; from a packet of Suttons' Giganteum variety he had at least one hundred plants. In transplanting it is important that the little tuber be not sunk beneath the soil; if it is, the leaves will be likely to damp-off. I once found my tubers scooped out in little hollows here and there underneath by what I found to be a small maggot that is common in some soils. I think the easiest remedy is to throw boiling water over the soil some time before you use it, or if you do not fear the dissipation of the moisture or ammonia, place the soil into an oven, or in its absence into a close pan or pot. Overpotting should be strictly avoided; and if the soil gets hard into a firm compact mass, if you cannot readily soften and loose it shake out and repot the plants. I never wholly dry-off my plants, nor do I put them out to have their perennial rootlets dried up and desiccated. Ripen on a moist surface, with the plants and pots plunged, if in no other material, in common garden soil, and the beneficial treatment will be quickly apparent.—W. J. M., *Clonmel*.



INJURIES AND LOSSES SUSTAINED IN THE WINTER 1879-80.

—The Royal Horticultural Society, being desirous of obtaining trustworthy information as to the effects of the late exceptionally wet summer and severe winter on trees, shrubs, &c., would be glad to receive reports from gardeners, florists, and others. Schedules for recording such injuries as may have occurred will be forwarded to anyone who may be willing to assist the Society. About twenty-five returns have been received; but as it is desirable to render the report as complete as possible, it is hoped that every county in the British Isles may be represented by at least one return. One or at most two reports have been received from the following counties, &c.:—Arran, Bucks, Cornwall, Derbyshire, Dorset, Dumfriesshire, Essex, Gloucestershire, Herts, Roxburghshire, Kent, Kilkenney, Leicestershire, Middlesex, Midlothian, Somersetshire, Suffolk, Surrey, Sussex, Sutherlandshire, Warwickshire, Wicklow, Isle of Wight, and Yorks. Address to Rev. G. Henslow, 6, Titchfield Terrace, Regent's Park, N.W.

— AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY held on Tuesday last, Col. R. Trevor Clarke in the chair, the following candidates were elected Fellows—viz., Dr. R. Abud, George M. Bell, Ebenezer R. Butler, M.D., Henry Cosier, Arthur Hibbert, Mrs. Cavendish Taylor.

— WE have received from Mr. Rivers of Sawbridgeworth a fine example of the GROS MAROC GRAPE. The berries are very large, nearly oval in shape, and in colour a bluish black of great intensity. In appearance this is an imposing Grape, and in quality is particularly sweet and refreshing—not of a nature to cloy the palate. The Vine is a good grower and bearer, succeeds well in a house with Black Hamburgs, and the fruit keeps for a considerable time after it is ripe. Since the above was written the Fruit Committee of the Royal Horticultural Society have awarded a first-class certificate for this Grape.

— "ORCHID GROWER" writes—"A very fine variety of VANDA TRICOLOR is now flowering in the Orchid house at Kew. The markings of the sepals and petals are very distinct, whilst the lip is a bright rosy lilac. The plant is bearing two fine spikes of flowers, which emit a delicious perfume. Dendrobium formosum giganteum is flowering freely in the cool house. Two good spikes of flowers proceed from the apex of the pseudo-bulbs. The flowers are pure white, with a blotch of lemon yellow at the base of the lip. It is growing on a block suspended from the roof, and evidently enjoys the treatment it receives by throwing out its long white roots in search of moisture. Near the above-mentioned plant is Epidendrum purum in flower. The flowers are creamy white, and densely packed in a drooping inflorescence a foot or so long."

— MR. IGGULDEN writes as follows on LOPHOSPERMUM SCANDENS:—"It forms one of the most attractive climbers imaginable for a temperate house, and is now in splendid condition in Capt. Jackson's garden at Meopham. The plants are growing in a low span-roofed house, are potted into 8-inch pots, and from these the roots are allowed to extend into an old, levelled, and well-trodden Melon bed. They are trained directly over the pathway along three of the topmost wires, and present a most brilliant appearance, the branching growth being clothed with innumerable crimson trumpet-shaped flowers. Plants are easily raised from seed, are useful for cutting from, and can be used very effectively in vases."

— IN the same garden Mr. Phillips grows TUBEROUS-ROOTED BEGONIAS remarkably well. Some of his seedlings are particularly fine, although scarcely distinct from many in commerce. So well are a number of seedlings growing and flowering that are pricked out in the above-mentioned Melon bed, that the question arises, Why not plant them out in the conservatory beds? They would undoubtedly well repay the little trouble necessary, and might easily be lifted and stored away during their resting period. Planting appears to intensify their generally bright colours, and strong loamy soil especially seems to suit them.

— "A BEAUTIFUL plant" writes "W. R.," "for the stove is ÆSCHYNANTHUS GRANDIFLORUS. I have a specimen now bearing two large umbels of bright orange-scarlet flowers, with a band of brighter scarlet round the entrance of the tube. The flowers are about 3 inches long and of great substance. This is really a grand species, and should be in every collection of plants however small."

— WE have received some pods of CARTERS' CHAMPION SCARLET RUNNER BEAN grown by a Leicestershire cultivator. They are very large, fleshy, and crisp, and are excellent examples of this well-known good variety.

— WE are glad to learn that the SHREWSBURY SUMMER SHOW, that was fully reported in our columns, was a great success,

and resulted in a profit to the Society of £500. Notwithstanding the loss arising from the Rose and Autumn Shows, the Committee are able to add £350 to the reserve fund, making the total of that fund £1200.

— THE Metropolitan Board of Works have arranged for holding a **CHRYSANTHEMUM SHOW IN FINSBURY PARK**. The display will be arranged in a temporary glass structure by Mr. Cochrane the Superintendent, and will be open to the public on the 23rd inst. The plants are in very good condition.

— MR. CROSSLING'S seedling **TOMATO GLAMORGAN**, which has been referred to approvingly in these columns, will, we learn, be distributed by Messrs. Osborn & Sons of Fulham.

— ON Saturday and Monday last an **EXHIBITION OF GLADIOLUS AND DAHLIAS** was held at the Royal Aquarium, Westminster. The blooms were tastefully arranged in vases and ornamental glasses on a table about 150 feet in length, and the combination of bright colours produced a pleasing effect. Messrs. Carter and Co., Holborn, exhibited collections of Potatoes; and Messrs. Lane and Son, Great Berkhamstead, contributed samples of Grapes.

— MESSRS. CHRISTY & CO., Fenchurch Street, have received a consignment of the Chinese reputed remedy for skin disease, known as **Tong-pang-chong**, and believed to be the product of **RHINACANTHUS COMMUNIS**. Specimens of this drug were sent to Kew about three years ago from Hong Kong, and were subsequently described by Sir Joseph Hooker as resembling portions of a woody root. In comparison with specimens of *Rhinacanthus* in the museum a great similarity was observed, but no doubt the true source will now be definitely settled.

— IN Mr. B. S. Williams's nursery at Upper Holloway several beautiful and useful Orchids are now flowering, and perhaps they are especially noticeable owing to the comparative scarcity of Orchid blooms during October and November. **THREE GOOD ONCIDIUMS** for attractiveness and their late-flowering habit are *O. aurosum*, *O. Forbesii*, and *O. ornithorhynchum*. The first has a rather short dense panicle of yellowish medium-sized flowers; *O. Forbesii* bears a panicle of handsome large flowers marked with yellow and a rich brown or chocolate colour; while the charming *O. ornithorhynchum* has compact branching panicles of small rosy purple blooms. A specimen of the latter is suspended from the roof of one of the Orchid houses, and the seven or eight pendent inflorescences render it extremely attractive.

— A BEAUTIFUL and comparatively rare Orchid—namely, **LÆLIA WOLSTENHOLMÆ**—is flowering in the same nursery. The petals and sepals are narrow, tinged with purple, and edged with a slightly darker shade of the same colour, the labellum having a centre of extremely rich purplish lake. It is one of the best forms of *L. elegans*, and was named in honour of Mr. Day's sister, Mrs. Wolstenholm.

— NEAR the above is a specimen of **PERISTERIA ELATA**, the Dove or Holy Ghost Plant, the *El Spirito Santo* of Panama. This charming Orchid is comparatively well known in most large collections, but it deserves the attention of those who can only afford space for a few. It produces a spike of roundish deliciously fragrant creamy white flowers, with fleshy sepals and petals, the labellum being spotted with pale lilac or blue.

— MR. G. LEE of Clevedon communicates the following relative to his **SEEDLING ASTER** that we referred to last week:—"There are ten stems on the plant, but which are as upright as their branches will allow. The extreme height of the stem is 3½ feet. The height of stem to lower branches 2 feet. The length of lower branches is 1 foot 3 inches. The number of branches on one stem twenty-five. The advantages of this seedling over other varieties are its lengthened period of flowering and its profusion of bloom,

the size of the flowers, and their bright colour. It commences flowering towards the end of August, and continues till the end of this month—quite nine weeks." Mr. Lee states this variety is a seedling from *A. novi-belgii*, but it appears to be intermediate between the two good varieties of *A. novæ-angliæ*—*pulchellus* and *roseus*, and is one of the most beautiful varieties we have seen.

— WE are requested to state that Mr. H. G. SMYTH has removed his establishment for garden requisites from Nos. 10 and 12, Castle Street, Endell Street, Long Acre, to more extensive and convenient premises, at 17a, Coal Yard, Drury Lane, London, W.C.

— WE are informed that Messrs. Stevens & Pinches' **ACME TREE AND PLANT LABELS**, figured by us in January last, can now be had with the names of 850 Roses and 550 fruits struck with a die, and raised above the opaque surface, consequently they are ineradicable and durable.

LIFTING UNRIPE POTATOES.

PERHAPS I may sound a note of warning to the inexperienced against lifting their Potatoes too soon. A year or two ago I read an article by, I think, Mr. Luckhurst, advising the lifting of all Potatoes when still in a growing state and before the disease had taken hold of them. I had six varieties planted, and I had every Potato uprooted forthwith, and very clean and pretty they looked. I took the greatest possible care with their tender skins and stored them thinly in a dry room, locked them up and felt happy. In a week or two after my neighbours began to complain of the dreadful disease. I smiled very blandly, and told them they ought to have them up and out of harm's way, and invited some of them to come and see my Potato room. I proudly flung open the door. But why linger over a tale of horror? I commenced to buy Potatoes a few weeks after.

This year I have saved upwards of one hundred measures of Myatt's Kidney, and have stored the tubers at seven distinct and separate times, noting down carefully the circumstances and conditions under which each lot were stored. The result is, that in the lots lifted last, and consequently when the tubers had attained their full growth, there is scarcely one diseased, whilst in those first lifted very many have become mere hard dry decayed husks. This has proved to my mind more than any amount of theory that it is a mistake to lift the tubers until they are quite ripe. It is too late for my experience to be of benefit to others this year, but could we not arrive at some conclusion before the season of 1881? I have this year grown (the second year from the berry) a distinct new variety much darker and better shaped than the Skerry Blue, which I hope to prove next year.—A. K. B.

ROYAL HORTICULTURAL SOCIETY.

OCTOBER 12TH.

THE meeting of the Society's Committees on Tuesday last was exceptionally well attended, and the exhibits in fruit, vegetables, and plants were sufficiently numerous to produce a good display. Fine collections of Apples from Messrs. Veitch and Lane occupied considerable space in the Council-room, Messrs. Veitch, Cannell, Williams, and the General Horticultural Company contributing a number of Orchids, fine-foliage and flowering plants. The Dahlia blooms from the Society's gardens formed the chief feature among the exhibits of flowers, and well indicated the beauty the Pompon race of Dahlias possess.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. Messrs. Osborn exhibited a dish of their new Fig, called Osborn's Prolific. It had been grown on the back of a cool house, and was excellent in flavour; but the Committee, considering it was shown so late in the season, and having been produced under unfavourable circumstances, expressed a wish to see it again. Messrs. Rivers & Son of Sawbridgeworth sent a dish of their new late Plum Grand Duke. It is a large dark Plum, in appearance like Diamond, but much superior in flavour, and very valuable for its lateness. It was awarded a first-class certificate. Another seedling, No. 15, was similar in appearance, but not so good as the former. No. 8 is another large dark oval Plum, similar in appearance to the two former; but it was not equal in flavour to Grand Duke, though superior to No. 15. Messrs. Rivers also exhibited a bunch of Gros Maroc Grape, very handsome, and well set with large berries, and finely coloured. This was highly appreciated and much admired by the Committee, and was awarded a first-class certificate. Mr. R. Gilbert, The Gardens, Burghley, exhibited a bunch of each Black Alicante and Abercainey Seedling Grapes. The former was quite unripe; the Abercainey was in fine condition, but on inquiry they were found to have been grown in different houses. It was arranged for it to be exhibited again at the meeting in December,

when it will be compared with other varieties with which it is most like. Mr. Woodbridge, The Gardens, Syon, Middlesex, exhibited fruit of a Banana called Musa Rajah, which was introduced by Mr. Burbidge from Borneo, where it is grown for use at the tables of the wealthy. The flavour was inferior.

Mr. R. Gilbert exhibited specimens of his Cabbage Broccoli, which was certificated last year. Some of it was cooked, and highly approved by the Committee. Mr. Muir, The Gardens, Taibach, also exhibited specimens, which were identical with Mr. Gilbert's. Mr. Iggulden, The Gardens, Orsett Hall, Romford, exhibited specimens of his strain of Cabbage Broccoli. It differs from the former in being more loose in the head, and consequently not so much blanched. This was also cooked, and considered by the Committee more delicate in flavour than the former, which were both strongly flavoured.

Mr. Wildsmith, gardener to Lord Eversley at Heckfield exhibited six specimens of Pitmaston Dnebess Pear, remarkably handsome. They weighed in the aggregate $7\frac{1}{2}$ lbs. A cultural commendation was unanimously awarded. Mr. Barron exhibited the following Pears from the gardens of the Society at Chiswick:—Souvenir de la Reine, a medium-sized yellow Pear, with crisp flesh and a good flavour; Souvenir du Congrès, a large and handsome Pear, but inferior in flavour; Vineuse, a large Pear and with a rich flavour and a high perfume, a very deliciously flavoured Pear. It was awarded a first-class certificate. Poire de Berrays, inferior in flavour. Mr. George Swinerd of Minster, Kent, sent a dish of the Thanet Quarrenden Apple, raised from seed of the Devonshire Quarrenden in 1859. The fruit is larger than the old Quarrenden, and exactly like it, but not so highly coloured, nor is it stained in the flesh as the old Quarrenden is. The flavour is sweet but the flesh is woolly. Mr. R. Gilbert exhibited a seedling Apple called Barnock Pride, a good-sized and highly coloured Apple with a very tender briskly flavoured flesh. Mr. C. Noble, Sunningdale, sent a small seedling Apple, but it had not much flavour. Mr. Dean of Ealing sent branches of Swan's Egg and Seigneur Espere Pears laden with fruit. Mr. Carmichael, The Gardens, Nowton Court, Bury St. Edmunds, exhibited a handsome fruit of his Victory of Bristol Melon, and a seedling Stirling Castle, which was over-ripe. A third variety, called Victorious Hero, a red-fleshed sort, was well flavoured, but it was too late in the season for it. Mr. Mann, The Gardens, St. Vincent's, Grantham, sent a seedling Melon, the flavour of which was inferior. Mr. Charles Ross, Welford Park Gardens, Newbury, sent a seedling Melon raised between Sutton's Horticultural Prize and Eastnor Castle. It was of good flavour but not remarkable. He also sent one "No. 2," raised between Colston Bassett and Read's Searlet. It is a fine, rich yellow, smooth-skinned ribbed Melon, with a pink flesh, and very richly flavoured. It was awarded a first-class certificate, and received the name Welford Park. Messrs. Rivers sent a specimen of Prescott Rock Cantaloup, grown under a handglass, but it was inferior in flavour.

Mr. Hinds, gardener to Lord Wimborne, Canford Manor, sent a dish of Hind's Improved Trophy Tomato, a fine plump even-surfaced Trophy, similar to Stamfordian, but more ribbed and not so good. Mr. Clark, gardener to Lord Hastings, Melton Constable, sent specimens of Carter's Golden Drop Turnip, and specimens of this and Jersey Lily also came from the Society's gardens at Chiswick.

Mr. D. Wilson, gardener to Earl Fortescue, sent five Smooth Cayenne Pines and three Charlotte Rothschild. The heaviest of the Cayennes weighed 8 lbs. 2 ozs. and $7\frac{1}{2}$ lbs.; Charlotte Rothschild weighed $6\frac{1}{2}$ lbs. They were awarded a silver Banksian medal. Mr. Goodacre, The Gardens, Elvaston Castle, sent two bunches of each of twelve varieties of Grapes. A letter of thanks was awarded. Messrs. Lane of Berkhamstead exhibited seventy varieties of Apples, and Messrs. Veitch & Sons exhibited ninety varieties of Apples. Each was awarded a letter of thanks.

Messrs. Freeman & Freeman of Norwich offered two prizes for collections of vegetables to be the produce of seed supplied by that firm. Only one collection was staged, but that was an exceptionally good one; the exhibitor, Mr. J. Clarke, gardener to Lord Hastings, Melton Constable, East Dereham, Norwich, easily securing the handsome first prize of £25. The collection included over forty varieties, well grown and in admirable condition generally. Some of the most noticeable were the following, all sent out by Messrs. Freeman:—Improved Dark Red Beet, very even and fine; Earliest Ashleaf Potato, even and of moderate size; large Summer Cabbage, very fine; Yard Long Cucumber, Prolific Vegetable Marrow, Defiance Celery, and Champion Cauliflower very large. Some good examples of Trophy and Greengage Tomatoes were also shown, with Carrots, Onions, Savoy, Leeks, Peas, and many others very fresh and clean.

FLORAL COMMITTEE.—Dr. Denny in the chair. Although the plants submitted to the attention of the Committee were not unusually abundant, yet there was a brightness and interest in what was staged that was very satisfactory. Messrs. Veitch & Sons, Chelsea, exhibited a number of Orchids and other plants, three pans of the lovely Pleione lagenaria being especially noteworthy; one pan about 2 feet in diameter was a mass of flowers, upwards of a hundred being fully expanded. A cultural commendation was awarded. Specimens of Stevia glandulosa, a New Granadan plant bearing numerous heads of white Eupatorium-like flowers were shown; the plant is fairly compact in habit with acute bright green leaves, and it flowers very freely. Liliun longiflorum verum from the open ground was also shown, having one fine flower. Odontoglossum Andersonianum with two

fine racemes of flowers, Oncidium varicosum, Pachystoma Thompsoni, and several Cyripediums, with other Orchids described below, were interesting and pretty.

Mr. H. Cannell, Swanley, Kent, exhibited a box of Pelargonium blooms comprising twenty excellent varieties; Lizzie Brooks, W. B. Miller, Guinea, and Mrs. Strutt being particularly fine. The arrangement of these flowers deserves notice, the Pelargonium blooms being placed in rows alternately with Violets on a bed of Stoncrop. Some fine Tuberous Begonia blooms were staged, also leaves of Cbilian Beet, the leafstalks, and midrihs varying in colour from pure white to yellow, pink, red, and crimson. Flowers of Abutilons grown out of doors were also exhibited in fine condition. A vote of thanks was awarded for the collections.

Mr. B. S. Williams, Upper Holloway, contributed several new plants. Nephrodium plumosum is a graceful species, with fronds about 2 feet in length, pinnate and arching. Cyripedium Haynaldianum has flowers of medium size, the labellum small and greenish, the petals and sepals similar, but tipped with purple and spotted. Gymnogramma Alstonii has neat bipinnate fronds 6 to 8 inches in length, and bright golden colour beneath. Croton Stewartii was represented by a fine specimen 4 feet in diameter and nearly the same in height, the obovate or oblanceolate leaves being dark green and richly veined and marked with bright yellow. A botanical commendation was awarded for Saccolabium denticulatum, a diminutive plant with a tiny raceme of yellowish flowers. A specimen of Williams' Superb Cockscorns was shown with enormous finely formed and richly coloured head. The strain was commended. Nepenthes Hibberdii, a form with small neat pitchers streaked with red, was also noticeable.

The General Horticultural Company sent several new plants, among which were Draena Countess of Lathom, neat in habit, the leaves 2 or 3 inches in diameter, green, broadly striped with red; Aralia Chabrierii, a species with linear leaves 8 to 10 inches in length, very dark glossy green with a fine red midrih—the habit of the plant was rather graceful; also a Cyperus, which is described below.

From the Society's garden, Chiswick, large collections of bouquet and single-flowered Dahlias were exhibited, which from the brightness and diversity of their colours attracted great attention. The majority of the varieties were of Continental origin, but the English-raised forms were also well represented. Some of the best varieties were the following—Guiding Star, white, and neat in form; German Favourite, crimson shaded, neat; Olga Kreutzburg, bright yellow, good form; Ich bin so Schön (I am so pretty), very diminutive, rosy crimson; Schönte der Schönen (Fairer of the Fair), very bright red; Bild der Anmuth (Picture of Grace), pale lilac, extremely symmetrical; Pure Love, pale lilac, globular in form; Frau Sebnneider, peculiar chrome yellow, florets quilled; J. C. A. Stanze, yellow with a rosy tinge, very neat; Rotber Riesi (Red Giant), very small, rosy purple, good form; and A. F. Barron, an exceptionally handsome flower of a pale sulphur tint, the florets having the margins infolded.

Messrs. James Carter & Co., 237 and 238, High Holborn, sent five seedling Coleuses—namely, Fair Maid of Kent, Rosy Morn, Burning Bush, Commander-in-Chief, and Excelsior, the two latter being distinct and pretty. Mr. H. Eckford, gardener to D. Sankey, Esq., Sandywell Park, Cheltenham, also sent several handsome seedling Coleuses, Montargis, Venti Miglia, and Dijon being especially fine and distinct.

First-class certificates were awarded for the following plants:—*Cyperus laxus variegatus* (The General Horticultural Company).—This is a very attractive plant, and will prove useful for decorative purposes. It is about a foot to 15 inches in height. The leaves and bracts are 4 to 6 inches in length, about half an inch broad, very prettily striped with white and green.

Angræcum Kotschyi (Veitch).—An epiphytal species from Zanzibar, with short and broad leaves and a long raceme of flowers, which are creamy white in colour, with pendent twisted spurs 6 or 8 inches in length.

Cattleya Marstersoniae (Veitch).—This is stated to be a hybrid between C. Loddigesii and C. labiata, and for neatness of form it is one of the best in cultivation. The sepals are narrow, of a delicate pale purple tint; the petals similar in colour, but rounded. The labellum is white in the throat, with a tip of bright rich purple.

Lilium longiflorum verum (Veitch).—This is a Japanese form, with narrow dark green leaves and long pure white wax-like flowers, the sides of the petals being scooped out so as to give a peculiar and very distinct appearance to the flower.

Dahlia William Rawlings (Rawlings Brothers).—A show variety of great beauty. The bloom is deep and symmetrical in outline, but the centre is rather flat. The colour is a deep rich glowing tint of crimson purple.

AT the usual meeting in the afternoon for the election of Fellows the Rev. G. Henslow delivered a short but interesting lecture upon the plants exhibited. He first alluded to the beauty of Pleione lagenaria and the peculiarity of the genus, consisting in its dwarf habit and in flowering before the production of leaves. The peculiar Angræcum Kotschyi was also referred to, the lecturer stating that he did not know another species of Orchid that had a similarly twisted spur. He suggested that it was probably of some service to the plant, being possibly similarly sensitive to some tendrils, and aiding in the support of the rather heavy inflorescence. This led to a description of Angræcum sesquipedale, which is well known in connection with Mr. Darwin's

remarkable observations concerning the necessity of there being some insect with a sufficiently long proboscis to reach down to the bottom of the spur where the nectar is secreted, which was afterwards found to be perfectly correct, though the insect was unknown at the time the observation was made. The colouring in the leafstalks of the Chilian Beet and the foliage of *Colcuses* was also briefly noted, Mr. Henslow stating that he hoped to make some progress in investigating the subject by aid of the spectroscope. Concerning the *Coleuses* he remarked that recently when in Switzerland he had noted that they were very commonly bedded-out, but although the varieties were numerous they were very dull in colours and devoid of beauty that characterise so many English-raised forms. The collections of Dahlias from Chiswick gave occasion to some remarks concerning the

history and development of the genus. The first introduction of the Dahlia, or Georgina, as it is often called on the Continent, was by the Marchioness of Bute, who received it from Madrid in 1789. The plants perished, and a second introduction was made by Lady Holland in 1804. These also perished, and it was not till 1814 when it once more became established, this time from France, where it had been cultivated in the hope of its tubers proving edible. They were too acrid either "for man or beast." The principal species under cultivation is *D. variabilis* or *superflua*. This has given rise to innumerable forms large and small. *D. coccinea* is perhaps best known in the single state, and does not appear to have contributed much to floral display. *D. glabrata*, *D. coccinea* were both represented from Chiswick, as well as *D. Cervantesi*, which did not appear cursorily



Fig. 63.—HIBISCUS SYRIACUS.

to differ much from *coccinea*. The lecturer then explained the nature of "doubling" in *Compositæ*, and pointed out two forms on the table—one, the ordinary kind, where the folded corollas were flat, another in which they approximated the "quill" type by being nearly cylindrical tubes. A third variety had each petal deeply cleft twice, revealing the origin of the corolla, in that it is composed, as in all "ligulate" florets (excepting the tribe *Cichoriaceæ*) of three petals, in consequence of the suppression of two in the change from a tubular to a ligulate corolla.

At the conclusion of the lecture a vote of thanks was accorded to Mr. Henslow. Col. Trevor Clarke drew attention to a healthy plant of *Oncidium ornithorhynchum* growing in moss in a small pot. He stated that he had employed moss placed in the pots very firmly for

several other Orchids, and they succeeded equally as well as in peat. It was announced in conclusion that the next meeting of the Society will be held on November 16th.

HIBISCUS SYRIACUS.

IN the search for something new and novel the merits of the old and good are sometimes overlooked. As may be seen by the engraving of some sprays which are represented precisely as they were gathered a month ago, this is one of the most beautiful autumn-flowering shrubs in cultivation. In some districts it is largely grown, and imparts a most cheerful aspect to shrubberies

and pleasure grounds ; but in others miles may be traversed and a hundred gardens visited without seeing any specimens of the Syrian Hibiscus, or, as it is commonly known, *Althæa frutex*.

Hibiscus syriacus has long been known, as it was introduced nearly three centuries ago. It was described by Gerard, also by Parkinson, but at that time was not considered hardy, as this old and very precise writer observes—“These woody kinds of Shrub Mallows have somewhat large, long, and divided leaves set dispersedly on the whitish hard or woody stalks; their flowers are large like unto a single Rose or Hollyhoke, in the one being white with purple spots in the bottom; in the other of a deeper red colour, or else of a paler purple with a deeper bottom, and with veins running in every leaf; they are somewhat tender, and would not be suffered to be uncovered in the winter time, but kept in a large pot or tub in the house, or in a warm cellar, if you would have them thrive.”

The old author's description is very accurate; but whatever the shrubs needed two hundred years ago they do not need a “tub” and warm cellar to have them thrive now. They are perfectly hardy, but to have them in the best condition they should have positions fully open to the sun, so that the growth becomes mature and a floriferous habit is induced. Specimens 10 feet high and through, bearing hundreds of flowers, are surpassed by few flowering shrubs, and equalled by none that are established in our gardens and flower in August and September. There are several varieties, some with variegated foliage and others with double flowers, but the two ordinary forms figured, the purple and white, are as free and effective as any; and, as the planting season is approaching, these old and good flowering shrubs should not be forgotten.

FUNGI ON POTATOES.

I THOUGHT it was an undisputed fact that the fungus was the cause of the Potato disease, and not a result. I have always found the spots spread from a minute centre either on the leaf-stalk, tuber, or fibre. Again, I have often found that plants in the most confined sheltered spots are attacked first either in the field or garden. I have often noticed this, and if the weather continues dry the fungus does not spread beyond its original first patch; and again, if those first affected are carefully removed at an early stage of its appearance you save the surrounding crop; otherwise if the weather is favourable it spreads from these centres most rapidly, whereas if the weather continues very dry or the first attacked patch is carefully removed, I have found it has not spread for weeks. I ought perhaps to say that almost invariably the under part of the leaf is affected first. I say, Almost invariably, for sometimes the very centres of the young growths are affected, on the edges of the leaves on the upper sides, under sides, or wherever the spores, according to my view of it, first fix themselves. My reason for this is that such parts are the most tender in tissue, and therefore the most favourable to the growth of the fungus. My impression is that the spores are carried upward from the earth by evaporation, and after a shower the under part of the leaf will be found quite wet long after the upper part has been dry, so that they more readily fix themselves to the wet tender parts. Again, as to the stem, it will be found, I think, that the most fleshy parts if screened by leaves are those affected first. Examine the fibres: if a fungus is not the cause why is the extremity, as also that attached to the stem, perfectly sound, and the other part, just a spot of a few lines or an inch or two, quite perished. As to the tubers, I think all are agreed that the largest are the most likely to be affected. Now, why is this? I think it is because there is more space for the spores to grow than on the smaller tubers; and again, why are some tubers affected in six or eight or more places, some only in one? Another argument, if I may be allowed the expression, to prove that fungus is the cause and not the result, will be found in a variety of Potato being planted in different soils, say one well drained and dry, thoroughly exposed to the air, and not rich, and the other in a well-drained but moister soil, such as Cabbages or Broccoli would delight in. In the summer in the one you get a sturdy growth, especially if about equal space is given to each set in both situations. In the rich soil the Potatoes grow luxuriantly with disease early and far-spreading both in top and tuber, whereas in the poor soil the plants possibly escape disease altogether. Now why is this, except that the tissues are more tender and therefore more readily attacked by the spores which more readily germinate on the tender tissues?

With regard to the tubers after they are lifted, I well remember about twenty-five years ago I lifted some old Ashleaf Kidney that I intended for seed. Part of them were removed at once to a loft and spread not more than three deep, the others were left on the

ground two or three weeks. The latter were mostly diseased, quite 80 per cent., while those in the loft had only about a dozen diseased Potatoes out of several sacks. How is this to be accounted for if the development of spores is not the cause of disease?

There is one more fact I wish to state—namely, give your Potatoes sufficient room between the rows for all haulm to be laid between them, and secured so that no part shall rest on the rows where the tubers are underneath, and the result will be, that although you cannot save the tops from the attacks of disease, you do save the most of your crop large and small. I cannot account for this except that the majority of the spores that fall from the tops get fixed to the soil underneath where they fall, and the most of those that rise into the air are borne away, and do not settle on the plants. I think it might as reasonably be argued that dry rot in timber is not the result of the attack of a fungus. It does not matter much how healthy and vigorous a tree is, bring dry rot into contact with its wood, and you will find that it will soon and effectually do its work. I could give many more illustrations.—GEORGE LEE, *Clevedon*.

THE EFFECTS OF ELECTRICITY ON VEGETATION.

SPEAKING of atmospheric electricity, and having described electricity as an attracting and repelling force, it will be very difficult for the non-scientific reader to at all realise the conception of an existing attraction surrounding him which he can neither see nor feel; yet such is the fact, and hence it will be desirable to suggest a very simple experiment by which it may be made evident. For this purpose, however, we may have recourse in the first instance to magnetism, the attractions of which are precisely the same. Procure a small horseshoe magnet and place it upon the table without its iron keeper; or, what is preferable, set a thick book up endwise, and lay it across the top so that the two ends may project beyond it. Now hold a small key or the soft iron keeper, which has no magnetism itself, a short distance in front of the pair of ends, but without touching them, and it will at once become a temporary magnet. Hold a fine sewing needle to the keeper and it will cling to it, and after the two have been removed it is probable that the hardened-steel needle will have been converted into a permanent magnet, whilst the soft iron will have parted with its magnetism altogether. An electrical atmosphere surrounds the magnet which can neither be seen nor felt, and can only be made apparent by its effects. Some iron filings sifted on to a piece of thin paper stretched tightly on a frame and placed over the magnet, and the frame then tapped, they will arrange themselves in beautiful magnetic curves and lines, which must be seen to be comprehended.

Corresponding to this the earth has also an electric aura enveloping it in the same manner, and consequently all objects within it will be affected in some one way or other. But to make this attracting atmospheric force recognisable a somewhat different arrangement will have to be adopted, for instead of magnetism we shall now have chemical action as the result.

Procure an ounce phial and a piece of copper wire just long enough to be enclosed within it, as in fig. 64; put in dilute sulphuric acid (one to ten) to one-half the depth or less, and cork it up with the wire as represented; very soon the upper part of the copper will begin to appear damp, and after a time the whole upper part will have become quite wet. Then minute granules will be seen studding nearly the whole of the exposed portion of the metal, and these ultimately will develop themselves as the very beautiful intense blue crystals of sulphate of copper. Now, if we put a second portion of the same wire and acid into another phial, so that the whole of the metal may be submerged and out of contact with the air, as in fig. 65, it will be seen that little or no solution of the metal will have been effected, as evidenced by the absence of colour in the acid; and therefore it is a proof that the dissolving of the metal is owing to the partial contact of the latter with the atmosphere contained in the phial. Here, then, is the very remarkable fact of substances being attracted (or repelled) upwards in direct contrariety to the ordinary law of gravitation. But there is another feature far more significant and important in its bearing on our present subject. By referring to fig. 66, which is the wire of fig. 64 enlarged, it will be seen that the copper has been eaten partly through just beneath the lower edge of the crystalline deposit. This, however, is the portion that was located just above the surface of the acid (A, fig. 64) and hence it was exposed to the lower surface of the atmosphere, where the acid and the air meet. It will be within the knowledge of most persons that wooden posts and railings are rotted off just above the surface of the ground in the same manner, so that our experiment represents precisely the same result that occurs in nature. It has always

been attributed to "the damp;" but this alone will never suffice, for it is well known that wooden posts and timbers and ancient canoes have lain for centuries buried within the earth, and when subsequently exhumed have been as solid as they were at first. As suggested by Faraday, "we must infer the unknown from the known." Trees and plants being situate in precisely the same manner—part in the damp earth and part exposed to the atmosphere—it is therefore a legitimate inference that a similar result must follow. Every gardener knows full well that the collar or neck of a plant which forms at this meeting of the air and the earth is the vital part of the plant, and where it is most easily killed, and which is thus explained; it is here that the food is converted into sap, which sap then flows upwards and becomes distributed all over the plant.

In the grammar of physical science there are various laws and rules that are never infringed, but are invariably followed to the letter; thus, in electro-chemical action fluids are always passed to the negative. In the decomposition of water oxygen invariably makes its appearance at the positive, whilst hydrogen is evolved at the negative. Alkaline salts, metallic deposits, and crystallisations of every description form at the negative; but acids, being

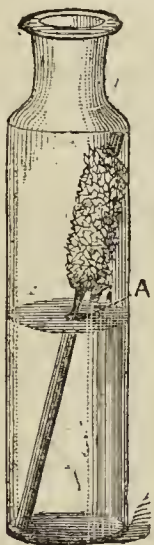


Fig. 64.

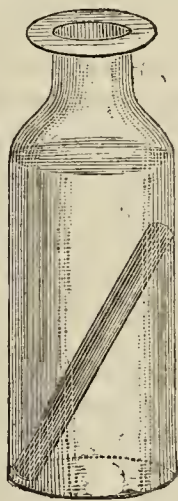


Fig. 65.



Fig. 66.

negative, accumulate at the positive electrode. The distinction between electro-chemical and ordinary chemical action is that in the former the resulting compound is attracted and drawn away from the point where it was formed to some other locality, as in the sulphate of copper being repelled upwards; but in ordinary chemical action, as in the mixture of an acid with an alkali, the combined elements remain where they are placed, there being no attracting or repelling power to enable them to shift their position, moisture in all cases being indispensable.

Respecting the nature of electricity this, from whatever source it may be derived, is always the same. It has this peculiarity, that in its active state it consists of two opposite forces, like one force polarised or divided into two; the attracting power being confined between themselves, each one repelling its like. Scrape some sealing wax on to a piece of paper, and then rub the same piece of wax on the coat sleeve, and although it will then attract small feathers or scraps of paper, it will have no attraction for its own scrapings, because they are of the same electric condition as itself.

By the law of induction, like magnetism inducing magnetism, it is impossible to have one condition of electricity without the other being present in like proportion of quantity and intensity. This is a very important point to be remembered, as it constitutes a leading principle in most of the phenomena of life and culture. Thus, if we excite increased action at the roots, an equally increased action in the plant must follow of necessity provided the plant be in a condition capable of responding, otherwise, like the excess of oxygen upon the seeds and from rusting iron, the balance will be destroyed and death speedily follow. Then, again, whenever an electrical condition is thus induced, it is always of the opposite character to that by which it was so induced. From this law of induction, and the earth being negative, the atmosphere becomes normally positive. These two relative conditions are essential to vegetation, or, if both be positive or both negative as was the atmosphere and earth in the plant-case previously alluded to, ordinary plants cannot possibly flourish; but a different character of growth altogether makes its appearance. As this, however, belongs more especially to the production of mildew and the cultivation of Mushrooms, &c., it must therefore be left for the present.

In order to enable us to comprehend the way in which oxygen is made subservient at the collar of the plant, it will be needful to explain the precise manner of its operations in connection with the copper wire. The lower portion of the latter, by its immersion in the negative acid, is at once rendered positive, whilst the upper portion by the positive atmosphere surrounding it is at the same time rendered negative. The next step is that this upper negative portion becomes damp on its surface as previously stated. The wire, being positive under the part so wetted, attracts and combines with the oxygen from the atmosphere, when the thin film of acid immediately dissolves and becomes saturated with it, and in its journey upward deposits it in crystallisation. It will be observed that the copper wire, after it has been a long time in the acid, has been less and less acted upon in proportion as it becomes more deeply immersed, and consequently further from the air-surface. This fact affords a good illustration of the advantage of roots being near the surface so as to be well within atmospheric influence.

In the rotting gatepost we have a corresponding action, but with somewhat varied results. The union of the oxygen with the carbon of the wood produces a soluble compound—carbonic acid; but which, not being crystallisable by ordinary means, and there being no organisation going on in the wood to effect its utilisation, it disappears into the atmosphere, and the post becomes lessened in its bulk imperceptibly, and without the usual discoloration of ordinary decay. In the latter it is the carbon that is left; but in this case it is the carbon itself that is appropriated and carried away by the oxygen, but which in the plant is absorbed and carried into the system. There is, however, another special arrangement for accomplishing this end in the best way. Instead of the fluid being carried up on the outside of the stem, as it is on the exterior surface of the copper wire, and where in the plant it would speedily be dried up by the sun and the wind, provision is made for its passing up inside among the cells and tissues within. Procure a few seedlings of any kind, from a half to an inch or more in length, and wash them for a minute or less in water coloured with a few drops of Judson's magenta dye, and then having rinsed them in clean water place them in a drop of water between two pieces of glass, and if they be now examined with a pocket lens it will be seen, that whilst the stain has almost instantly coloured the roots strongly, the colouring ceases abruptly at the neck or collar, and is then only very slowly absorbed in streaks and lines into the stems and leaves. There will thus be an abrupt division between the parts within the soil on the one hand, and those above it exposed to the atmosphere on the other. This process of staining is a most delicate test for chemical affinities or otherwise of electrical condition. The dye takes readily in all negative fluids, whilst it is rejected by all such as are positive. Let it be applied to the seed in its earliest stages of germination, and it will be found to be equally demonstrative, showing that the seed has a polar construction, and hence it is that it was enabled in the experiment with Cress seed to respond to the electric influence when reversed, and was thus compelled to an inverted position, or heels upwards. The roots are here shown to absorb readily an oxygenated pabulum and to pass it onwards; but the cross-action at the collar causes it to unite with other matters thus introduced and to become nutrient sap, so that it thus leaves this part in a different state to that in which it entered at the roots. If a seedling be grown in sand or in crushed brick, its rootlets when pulled up will be found clinging to the grains in clusters. Liebig has spoken of stones found in Wheat fields whose surfaces are covered with minute grooves, and in some instances near the roots of trees these grooves have been occupied by rootlets. Now these rootlets are strictly feeding upon the mineral, and have been the agents in electro-chemically dissolving out the said grooves. Flint glass and the most insoluble substances can be acted upon thus very readily by the battery, and when it is remembered that many or most of the tissues of plants are thickly studded with crystals of lime, or "raphides," and the stems of canes and grasses are covered with a coating of silex or flint, it is easy to see where and how the plant has acquired them.

Place a strip of bone, such as the handle of an old toothbrush, in acid instead of the copper wire, and it will undergo a very similar change. The lime will soon begin to appear above the acid, and crystallise upon the exposed surface. But there is another peculiarity. On the side away from the light the lime will travel much higher up than it does on the side exposed to the light, a fact quite in accordance with Nature. Oxygenation and the production of sap, or in fact the growth of a plant, takes place chiefly at night or in the dark, just as the digestion of our food and the production of chyme, manufactured in our stomachs, is carried on in the dark.

But to have a more perfect imitation of plant crystals take a small strip of sheet zinc and solder it on to the end of a similar piece of sheet copper, and immerse the zinc end up to the join in a solution of chloride of lime, and the copper will soon become studded with minute acicular crystals, exactly similar to others to be found in plants. If the sap be viscid the crystals assume a globular form, and are then termed "spheraphides." These have been produced electrically in great abundance by using white of egg to thicken the solution. Such, then, being the means provided for the preparation of the plant's food at one end, the next point will be the consideration of those arrangements which effect its conversion at the other end into the various products and tissue of the system.—W. K. BRIDGMAN, *Norwich*.

Errata.—Page 304, eighteenth line from the bottom, first column, for "3d. per foot run" read 9d.; page 305, twenty-eighth line, first column, for "nitrogen" read "hydrogen."

THE STAPLEFORD ROSES.

I THINK "D., Deal," on page 299 too hasty in his conclusions about Mr. Bennett's hybrid Roses; there has scarcely been time to thoroughly ascertain their good or bad properties. The short time since these Roses were distributed, and their absence with the exception of one or two varieties from the various Rose shows of 1880, may afford some grounds for "D., Deal's," conclusions. I was more surprised when he stated that the heads of a well-known London firm should also speak against them. It seems strange that nearly all nurserymen, or their representatives, should praise these varieties so highly when first offering them, and then before being well known condemn them. I cannot say at the present that the Stapleford Roses will ever surpass such a variety as La France, which I consider one of the most useful Roses in cultivation.

"D., Deal," must bear in mind if these Stapleford Roses never become famous as exhibition varieties they may prove of much value for many other purposes. I do not altogether judge a Rose upon its merits in the exhibition tent as regards its form and beauty, but upon its general use for all purposes. What I have seen of the Stapleford Roses so far, they appear to possess advantages which will be highly prized by gardeners who have Roses to produce in quantity during the worst months of the year. No one can say they are not floriferous in their nature, every small shoot producing a bloom and continuing to do so in succession for months. Every small plant, when only 6 or 8 inches high, will commence flowering, and I believe when well tried these small plants will be most welcome amongst the many plants used for room decoration.—WM. BARDNEY.



KITCHEN GARDEN.

CLEAR off all exhausted crops so as to have the ground in readiness for digging or trenching, but where large fruit or other trees are growing in or near the garden it is well to defer turning up the soil until the leaves have fallen. Before digging or trenching, a dressing of quicklime at the rate of about a peck per rod will be beneficial in the destruction of slugs and their eggs. Manure, except in a crude state, is best applied in early spring, especially for trenched ground. Trenching should be practised not more distantly than every third year, and when the soil is of a retentive character it should be turned up in ridges of about 2 feet at the base, so as to expose as much surface to the action of the atmosphere as possible during the winter.

Root Crops.—The main crops of Carrots, Salsafy, Scorzonera, Beet, &c., should now be taken up on a dry day, and placed in an airy shed to become moderately dry before storing away in moist sand in a cool place. Do not pare the tops too closely, and in taking up Beet be careful not to cut or break any of the tap roots, as in that case the colour will be much deteriorated when cooked.

Cauliflowers will now require considerable attention to protect the heads in case of sudden frosts; sufficient at present will be attained by breaking down a few leaves over those most advanced, and it assists in keeping the heads clean and white. Complete the planting of Cabbage for spring use, and a number of strong plants placed a foot apart on a warm border will come in early and prove useful as

Colworts. Early crops should have a little soil drawn around the stems to steady them against wind, also dusting with lime or soot as a deterrent to slugs.

Forcing Department.—A hotbed of fermenting material should at once be made about 2 feet in height, well trodden or beaten down, the frame being placed on, and the bed covered with about 4 inches depth of light rich soil. When the soil is warmed through sow Radish seed, and as soon as the seedlings appear above the surface withdraw the lights until the Radishes are well advanced in growth, when they will bear being kept closer. Wood's Frame is the best long variety; Scarlet and White Forcing Turnip, with French Breakfast, are the best for forcing in pits or houses. Late crops of French Beans in pits or frames will require considerable attention to prevent them damping off, ventilating constantly, maintaining a temperature of 60° to 65° at night and 70° to 75° by day. Make successional sowings in 9-inch pots, employing rather light rich soil, and keep the pots well up to the light. Commence periodical sowings of Mustard and Cress. Where Seakale is required very early, strong plants with well-developed crowns may now be lifted and have the leaves carefully stripped off or cut-in with a knife, placing the roots in rich moist soil in a Mushroom house or similar place where there is sufficient heat and means are taken to exclude light. A fermenting bed will facilitate the growth, the top heat ranging from 60° to 65°.

FRUIT HOUSES.

Melons.—The season, as regards dung-heated pits and frames, may be considered at an end; we may therefore dispense with any further instructions in this department for the present. To have Melons late plenty of both top and bottom heat must be at command, and where these exist Melons will still form part of the dessert. Atmospheric moisture will require to be sparingly furnished after this, especially in dull weather, affording very moderate supplies of water at the roots, about once a week being often enough. Remove all superfluous laterals and thinning out the old growths and foliage, so as to give the fruit the benefit of the autumn sun. A temperature of 70° to 75° should be maintained artificially, falling to 65° at night. As opportunity offers a quantity of rather strong loam cut with its turf about 4 inches thick should be secured and stacked grass side downwards, adding about a bushel of quicklime to every ten of loam. This allowed to lie over winter will be an excellent compost by the time it is required in spring. Cow dung, if it is likely the loam will need enriching, should be collected and kept dry.

Cucumbers.—Place out the plants intended for winter fruiting at once on raised hillocks or ridges as near the glass as the form of the house admits. Let the autumn-fruiting be regularly cut over twice a week, removing all tendrils and male blossoms, maintaining a night temperature of 75°, falling to 65° in the morning, 70° to 75° artificially in the daytime, and 80° to 85° with sun heat, admitting a little air upon all favourable opportunities. Continue keeping the evaporation troughs filled, and damp the floor at about 7.30 A.M. and 3.30 P.M., ceasing syringing over the foliage now; and if mildew appear dust well with flowers of sulphur, fumigating if aphides are seen. Reduce the supply of water at the roots, but not so much as to cause flagging. Keep the glass thoroughly clean to admit all the light possible.

Cherry House.—The lights which were removed need not be replaced for another month or six weeks; in the meantime have them repaired and painted. If any removal of the trees be intended it should be attended to as soon as the leaves commence falling. Trees not in a satisfactory condition should have their roots examined, and the soil must be removed, carefully lifting the roots to within 2 or 3 feet of the stem, and, after seeing that the drainage is in good order replace them with as little delay as possible in fresh compost. Turfy loam, with about a sixth of road scrapings and a twelfth of old mortar rubbish forms a suitable compost. It should be employed rather dry and rammed well down, giving a good watering at once. If fresh trees have to be introduced select those that have been trained to a wall for about four years, and if carefully lifted and planted they will give good results the first season. The varieties most suitable for growing under glass are Black Tartarian, May Duke, Elton, Governor Wood, and Frogmore Early. It is essential that the border be

efficiently drained, and above them 12 inches of rubble, covered with a layer of turves grass side downwards, and about 24 inches of compost as above described, allowing 9 inches more for settling. A border 6 feet wide is ample, and should be entirely within the house. Trees in pots must be examined, and such as require larger pots can be shifted into those 2 to 3 inches larger. Where it is not considered desirable to increase the size of the pots the trees should have a few inches of soil removed from the base of the balls, the roots being cut back, and all the loose surface soil removed; supplying fresh soil, to which has been added about a fourth of well-decomposed manure. Water thoroughly, and plunge the pots in ashes to the rims in a sheltered situation, where they may remain until removed to the house.

ORCHARD HOUSE.

The trees having been attended to in potting or surface-dressing as may be required, they should remain under glass until most of the leaves have fallen, when they may be moved into the open air, placing them on ashes in a sheltered situation, surrounding and covering the pots with that or some other protective material. In this position they may remain until December or January, the trees being benefited by the exposure. If, however, potting and surface-dressing has been delayed it should be attended to at once. Trees allowed to root from the base of the pots should have the roots cut off close to the bottom of the pots, and the surface soil with the roots or fibres it may contain must be scraped out to a depth of at least 3 or 4 inches at the sides of the pots, and supply turfy loam rather strong, adding a fourth of well-decayed manure and a twentieth of bone meal, which can hardly be rammed too firmly. Planted-out trees requiring root-pruning should be attended to whilst they are in leaf, and those not thriving satisfactorily may have the roots laid bare, the old soil removed, lifting the roots carefully to within a short distance from the stem, the drainage being put right, and the trees replanted in fresh compost, spreading the roots out carefully. Maiden loam, strong rather than light, suits all fruit trees. The ventilators must be kept open by night as well as by day, but in case of the wood not ripening well the ventilation may be lessened in the daytime to secure a higher temperature, allowing, however, a circulation of air, and ventilating fully at night. If there is means of heating, the heat may be turned on in the morning and off at night.

FLOWER GARDEN.

The late tempestuous weather has nearly destroyed the beauty of flower gardens, hence anything that it is desirable to protect should at once be attended to. Some of the plants now employed for outdoor decoration are of great value for furnishing conservatories, halls, &c., provided they are lifted before they become damaged. Aralias, Abutilons, Chilian Beet, Cannas, Dracænas, Melianthus, Solanums, Grevillea robusta, Acacia lophantha, Wigandias, &c., lifted carefully with good balls, potted, and placed in a close moist atmosphere, and if syringed they will soon become well established and prove useful for general decoration where it would be running great risk to employ choicer but not more effective plants. Succulents of the half-hardy type, such as Aloes, Agaves, Echeveria metallica, E. metallica rubra and E. secunda glauca, Sempervivum tabulæforme, S. arboreum variegatum, S. canariense, S. Donckelaari, Kleinias, and Pachyphytums, should at once be taken up, potted in good open soil, and placed in a dry warm house or pit until established, when they may be moved to cooler quarters with advantage. All Pelargoniums when housed should have a dry atmosphere, damp being their greatest enemy. Verbenas, Calceolarias, Pectunias, and similar plants will do well in a light airy house where the temperature is not allowed to fall below freezing point. Alternantheras, Coleus, and Iresines should have a minimum temperature of 55° to winter them satisfactorily.

As soon as the frost causes a general lifting of stock, a speedy clearance should be effected preparatory to filling the beds for the winter, either with spring-flowering plants, bulbs, or evergreens. Of shrubs suitable for this purpose may be mentioned Erica herbacea carnea, E. herbacea alba, Laurustinus, Andromeda floribunda, A. Catesbæi, Euonymus radicans variegatus, E. japonicus albo-marginatus, E. japonicus aureus and aureus marginatus, Aucuba japonica limbata, A. longifolia, A. japonica vera nana, A. japonica mascula,

Cryptomeria elegans and var. nana; Hedera arborea vars. aurea, elegantissima, Rægnoriana, and fructo-luteo; Osmanthus ilicifolius and vars. aureus and variegatus nanus, Skimmia japonica, Thuja aurea, Thujopsis borealis, Retinospora plumosa and var. aurea, R. obtusa aurea nana, R. ericoides, Pernettya mucronata; Cupressus Lawsoniana and vars. nana glauca, alba variegata, and erecta viridis; Ligustrum japonicum, Juniperus Sabina variegata, Myrtle-leaved Portugal Laurel, Buxus suffruticosa argentea marginata nova, B. sempervirens aurea, Vinca elegantissima, Gold and Silver Hollies, and Golden Yews. Grounds, lines, or edgings of Gold and common Thyme, Pyrethrum Golden Feather, Ajuga reptans rubra, Stachys lanata, Cerastium, Sedum corsicum and S. glaucum, Sempervivum arachnoideum, S. calcareum, and S. montanum, and Saxifraga granulata and hirta, will render the garden cheerful in the duldest months; and if some of the earliest flowering bulbs, as Snowdrops, Scillas, and Crocuses, with Arabis alpina variegata argentea, Hepaticas, Daisies, Primroses, &c., be introduced a very effective spring display may be secured. Beet and the many coloured variegated Kales may be used with good effect.

The mixed or herbaceous border should now be examined, and any of the strong-growing plants having outgrown the spaces allotted to them they should at once be reduced. Most herbaceous plants require good soil, and where any have stood long on the same ground an entire removal and replanting will be found of great benefit, as the strong-growing species soon exhaust the soil immediately surrounding them. By replanting early in the season the plants have time to become re-established before severe weather sets in. Prior to replanting the border should be trenched as deeply as there is good soil, and at the same time adding some well-decomposed manure, leaf soil, or well-reduced vegetable soil, working it well in.

Planting evergreens may be done now, also deciduous trees and shrubs as soon as the foliage begins to fall; and the ground being comparatively warm and moist the plants will commence making roots at once, which cannot be the case when deferred until the ground is cold. All alterations should be pushed forward at this season instead of putting it off until spring, when more important matters will be pressing. Sweeping and cleaning up will entail constant labour for some time to come.

PLANT HOUSES.

Greenhouse.—A few plants of Cytisus racemosus superbus that have been ripened well and early, if now introduced to gentle heat and kept near the glass, will come into flower quickly, and be very useful for conservatory and cutting. Some of the earliest Epacris may be forwarded by placing them in a house with a temperature of 50°, and a similar temperature will be required for Monochætums that have well ripened through the autumn, and will shortly flower. Lasiandra macrantha floribunda, to induce it opening its violet-purple flowers freely, should have similar treatment, also Tree Carnations, Libonia floribunda, Cyclamen persicum vars., and Bouvardias, as they do not flower freely in winter in an ordinary greenhouse temperature. Witsenia corymbosa will now be opening its lovely blue flowers, and as its leaves are inclined to become bad at the points these should be removed with a sharp knife so as to improve its appearance for the conservatory. Heliotropes that have been well grown and fully exposed during the summer, with the flowers constantly pinched off, will flower for a considerable time in a temperature of 45° to 50° artificially. Crowea elliptica, C. latifolia, C. saligna, and C. stricta, bloom for six weeks to two months continuously at this season, their starry pink flowers being very pretty, and if kept rather warmer than an ordinary greenhouse their flowers will be finer. Correa cardinalis, C. Brilliant and C. bicolor, will bloom with little attention to the end of the year, also many Ericas. Lachenalias will now be growing, and should be potted and assigned positions near to the glass.

Orchids.—Many attractive species and varieties will yet be blooming, and the practice of removing them to a drier atmosphere should be followed, the temperature ranging from 50° to 55°, the flowers lasting longer than in a very moist atmosphere. Oncidium macranthum, O. flexuosum majus, O. tigrinum, O. incurvum, O. aurosum, and O. bicallosum are among the best for autumn and winter flowering.

Vanda cœrulea, Odontoglossum grande, and Pleiones can bear a dry cool temperature, giving them just enough water to prevent the plants from suffering, thus prolonging the blooming period. Calanthes now throwing up their flower spikes should have every encouragement of heat and moisture, keeping the leaves clean by frequent spongings. Dendrobiums and Cattleyas which have completed their growth will now require very little water. Phalaenopses must be very carefully supplied with moisture, for should the leaves be overcharged at this season they are very liable to decay. Zygopetalums starting into growth should be repotted, the pots being three parts filled with potsherds, filling up with good rough peat, and growing in a moist atmosphere. The temperature of the East India house should have a mean of 70° by day and 60° at night; the Cattleya house 65° by day and 55° by night; and the Odontoglossum house 55° by day and 45° by night. The atmospheric moisture must also be reduced, and syringing overhead discontinued, except to prevent shrivelling, and for newly imported plants. Very little ventilation will now be necessary except when mild, when a little air may be given. Let the woodwork and glass be thoroughly cleaned, taking advantage of every opportunity to give the plants a thorough cleaning. Slugs are very destructive to the growths and roots, they should be sought after with a lamp at night. Plants sometimes become shrivelled from the roots decaying, in which case shake out and cut away all dead roots, washing the remainder with tepid water, repotting and giving very little water until fresh roots are pushed, keeping a moist atmosphere and syringing frequently. Syringing will be all that is necessary to restore shrivelled pseudo-bulbs to plumpness, the roots being healthy, but water lightly at the roots.

TRADE CATALOGUES RECEIVED.

William Paul & Son, Waltham Cross, Herts.—*Special Catalogue of Roses, Fruit Trees, Shrubs, &c.*

Cranston's Nursery and Seed Company, King's Acre, Hereford.—*Catalogue of Roses.*

Boulton & Paul, Norwich.—*Illustrated List of Ornamental Iron Fences and Gates.*

Osborn & Sons, Fulham, London, S.W.—*List of Trees and Shrubs.*

John George Hill, Merriott Nurseries, Crewkerne, Somerset.—*Catalogue of Fruit Trees, Nursery Stock, and Bulbs.*

John Jefferies & Son, Cirencester.—*Catalogues of Roses, Trees, and Shrubs.*



* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Apples for Orchard (*P. Gruel*).—If you will state the number of trees respectively of dessert and culinary varieties that you require, and the district for which they are intended, we will publish a suitable selection.

Leucadendron argenteum (*John Sheppard*).—The silvery leaf you sent is that of the handsome Silver Tree, or Leucadendron argenteum, of the Cape of Good Hope, where the colonists also know it as the Witteboom. The tree was at one time in great request there to furnish a supply of firewood, and that led to the destruction of so many that it is now comparatively scarce.

Tropæolum speciosum (*P. F., Dublin*).—We know of no reason whatever "why this plant will not succeed in Ireland," and your failure to establish it does not prove that it will not grow there. We think there are plants growing in Ireland, and we know many persons have failed to establish it in England, while several have succeeded, and the plants grow and flower freely. It appears to like a cool position and an abundant supply of water.

Name of Tree (*Winchester*).—Please send us another spray, and also leaves of the different forms to which you first alluded; none of those sent were lobed. We think on examining the leaf variation we shall be able to give you the correct name and some information relative to the tree.

Camellia Culture (*D. T.*).—There is no pamphlet published on Camellias. If you send 3½d. in postage stamps to this office, and ask the publisher to send

you No. 994 of the Journal, you will find notes on their propagation and culture that will possibly be of service to you. If you need special information on any particular point relative to these plants we will readily supply it through our columns if you will state your requirements fully and clearly.

Wintering Alternantheras (*Kingston*).—You cannot preserve them in your cool greenhouse from which "frost is only just excluded." They are stove plants; and like many others that must have a warm house in winter, Colerases for instance, they succeed well in the open ground in summer. A temperature of 60°, or 55° as a minimum, is essential to the preservation of Alternantheras through the winter.

Anemone japonica (*A Subscriber, Warwick*).—The plant to which you refer was probably a chance seedling, and there is considerable variation both in the size and shades of colour of plants raised from seed. We have seen many flowers as deep in colour and better in form than yours; still the variety is a very pretty one and worthy of preservation.

Grapes not Colouring (*J. E.*).—The great number of small berries indicate that the flowers were imperfectly fertilised, possibly owing to a low temperature and moist atmosphere during the flowering period, which prevented the dispersion of the pollen. Want of colour is generally the result of over-cropping. The "black stalks" to which you allude indicate that the Grapes are shaking, which is frequently induced by over-cropping or defective root-action. Not knowing the age and condition of the Vines, with the weight of the crop on each rod, we are unable to give a more explicit reply.

Rose for Wall (*Stirling Castle*).—Few Roses give more satisfaction for covering space on a wall than Gloire de Dijon, which flowers early and late, and occasionally produces blooms suitable for exhibition. If you prefer a dark Rose probably Duke of Edinburgh will suit you. It is a free grower, and affords richly coloured blooms, several of which under good cultivation are fine for exhibition. Charles Lefebvre is also a good pillar and exhibition Rose. The Pear sent is the English Caillot Rosat, the Apple Gloria Mundi. It is good, but we have received some larger specimens this week. Your Lord Suffield is above the average, but we have seen larger examples.

Camellia Buds Abnormal (*J. C.*).—The plant was either too exhausted by excessive flowering last year or its roots received a check, possibly by drought, at the period when fresh growth was being produced. If all the growth terminals are similar to the one you have sent the plant will not recover without some pruning, or at least it will be brought into a satisfactory condition much sooner by the judicious aid of the knife. All the shoots should be shortened to parts where healthy buds are apparent; and if there are no such buds we should cut the plant down much after the manner of pruning a Pelargonium, as no plants break more freely from the old wood than do Camellias. The pruning should be done in spring, and the plant placed in a warm moist house and be syringed frequently, when it will in all probability produce fresh growth freely, and become as healthy and vigorous as a young plant.

Inarching Vines (*Correspondent*).—We would rather inarch or graft the Madresfield Court with the Buckland Sweetwater than the Gros Colman, as on the latter, which is a very strong grower, the Grapes might be liable to crack. The Duke of Buccleuch we should inarch with Gros Colman, and the Canon Hall Muscat with the White Tokay. We cannot account for the unpleasant flavour of your Grapes except on the supposition that you have watered the Vines with liquid manure after the Grapes commenced ripening. This does not always affect the flavour, but it does occasionally, and the practice is not a safe one, and is not adopted by good cultivators.

Hautbois Strawberry (*Tyro*).—The old Hautbois is a very small fruit, pale in colour and with prominent seeds, and has the peculiar flavour of the wild Strawberry of the woods, *Fragaria vesca*. It is scarcely worth cultivating. Prolific Hautbois is larger with purplish fruit, and is richer in flavour. The Royal Hautbois is much larger than either of the preceding, the fruit being rosy purple in colour and rich in flavour. It is by far the best variety of Hautbois. You say the Hautbois is not so "much as mentioned" in the work you quote, but if you look carefully you will find it under the name of *Fragaria elatior*. All the varieties of Hautbois are totally distinct in appearance and flavour from the ordinary dessert Strawberries, and are much smaller. The peculiar flavour is agreeable to some palates, but not by any means to all. You had better obtain a dozen plants of the Royal Hautbois, and try the fruit before planting the variety extensively. We can only answer your second letter through the post, and for this purpose your full address is essential.

Trees for Churchyard (*A Yorkshire Curate*).—We apprehend that you require evergreen trees for your churchyard on the East Yorkshire coast, as those you have tried are Conifers. *Thujaopsis borealis* (*Cupressus Nutkaensis*) is a most graceful Conifer of erect habit, forming a beautiful conical tree, very hardy; indeed it is never injured by frost, and is a naturally a coast tree, being found on the north-west coast of North America—viz., Nootka Sound, Observatory Inlet, and on the island of Sitka. It emits a fine balsamic odour, and is the tree of trees for your purpose, and we should employ it exclusively. *Pinus pumilio* is a trunkless spreading bush, very hardy, and is from the Alps beyond the highest limit for growing trees. *Pinus austriacus* forms a dense spreading tree, and sombre in aspect. *Pinus insignis sempervirens* is also very valuable for seaside planting. Of deciduous trees the Red-twigged Lime (*Tilia sanguinea*), *Ulmus campestris*, *Ulmus campestris fastigiata*, Beech common and weeping, *Platanus occidentalis*, and Weeping Birch. Evergreen Oaks also succeed well, but are liable to have the leaves browned.

Flowers for Front Garden (*A Reader*).—If Roses thrive in your district you might have a half-standard in each bed, La France and Général Jacqueminot being good garden varieties. No flowers succeed better in towns, and none are more suitable for mixed beds than the old scarlet Glove, the flowers of which are both beautiful and sweet. White and other common Pinks would also be suitable. Perennial Candytufts would precede these. Sweet Williams are excellent for small mixed beds, and are readily raised from seed sown in the open ground in June, so also are Antirrhinums, two or three plants of the flowers named to be planted towards the centre of the beds; and nearer the margin Pansies and Polyanthuses, which also may be raised from seed, and still closer to the edge double Daisies and Thrift. Those would do as permanent occupants; between them a few Stocks and Asters planted in May, and seeds of annuals sown in March and April, such as Mignonette, Nemophilas, Saponarias, dwarf Convolvulus, Lupins, and Clarkias, with a patch or two of *Linum grandiflorum* and Venus's Looking-glass, would render your beds both gay and sweet. For flowering in autumn plant *Anemone japonica* with its variety alba. For such garden bulbs are indispensable; and Winter Aconites, Crocuses, Snowdrops, Tulips, Hyacinths, and *Anemone fulgens* should be planted at once. If stout neat pegs are firmly inserted to mark the positions of the bulbs, these may remain in the beds as permanent occupants, and the soil being suitable they will grow and flower each year.

Small's Admirable Apple (*G. B. V., Co. Down*).—In all probability the very mode you have adopted to render the tree fruitful has had an opposite effect. You say you have "pruned regularly summer and winter," and yet your tree produces little blossom. We advise you to try another mode. Thin out the branches if crowded, and do not prune at all except to prevent overcrowding of the growths. This Apple has a tendency to produce blossoms on the ends of the shoots. We have seen trees that have been pruned systematically comparatively barren, while others that were seldom touched with the knife laden with fine fruit. It is a very good Apple.

Wireworms (*Under Gardener*).—You have been rightly informed that "the wireworm is not a worm at all, but the grub of a beetle." This beetle is called *Cataphagus lineatus* by some entomologists, and *Elater segetis* and *E. striatus* by others. It is very appropriately called *Cataphagus*, from the Greek word signifying to devour, and *lineatus*, or lined, from the brown lines along its wing-cases. The larva, or wireworm, of this beetle is a pale dirty orange or tawny colour, having six very short legs. The body is formed of twelve scaly rings besides the head. Two different kinds, the offspring probably of different species of this genus of beetle, are represented in the annexed cut. In the same appears the *C. lineatus* magnified, and the line by the side shows the natural length of the insect. It is of a dull brown colour, with a greyish down over it; head and thorax black. The lines on the wing-cases are in pairs, united at each end, and the legs and antennae dull red. The beetle may be found under moss in hedges and elsewhere throughout the year. Its larva preys upon the roots of almost all cultivated plants. In the garden those of Lettuces, Turnips, Carrots, Potatoes, Cabbages, Irises, Pinks, Lobelias, Aueones, Ranunculuses, Carnations, and many others are destroyed by this vermin. Digging gaslime into the soil has been recommended for driving it away, and the root of the white Mustard is said to have the same effect. Other remedies are to grow plants for which they have a greater fondness near those we wish to protect. The roots of the double Daisy are such a lure for them, and from a row of these grown to protect Carnations, &c., two thousand wireworms are recorded as being taken in one season. Soda ash dug plentifully into the soil is also said to destroy them, but their most effectual exterminator is the mole.



Fig. 67.

Planting Tulips (*J. E. D.*).—The best planting season is about the beginning of the second week in November, as near the 9th of that month as the weather and the state of the ground will permit. This rule applies to all the country north of London; perhaps in the milder climate of the southern counties a week later would be better. Offsets may be planted a little sooner or later, as may be convenient. The tallest growers should be in the centre of the bed. This renders it necessary to plant them in rows lengthways of the bed, and not across it. This being determined upon, let the soil be levelled, then with a hoe draw a drill the length of the bed as nearly 2 inches deep as possible. As soon as the drill is drawn bring out all the tall growers, and plant them 5 inches apart at the bottom of the drill, giving each a gentle pressure. When the row is finished thrust in at each end a strong stick to mark where the row of bulbs is when covered up. Cover up the bulbs by the aid of a short-toothed rake. After that let the soil on each side of the planted row be stirred up with a three-pronged fork. Then set the line at the right distance from the centre (we mentioned that the beds should be 4 feet wide, which would allow 9 inches between each of the five rows, and 6 inches next the edging); the line then must be set at such a distance from the centre that the next row of bulbs will be exactly 9 inches apart from the centre one. Draw the drill the same depth as the first, and plant the next tallest flowers in it. Then mark the row with a stick at each end, and so proceed till the whole is finished; the lowest growers will then be next the paths all round the bed. Each variety must be numbered.

Early Cucumbers (*C. S.*).—You ought to have been more explicit in your inquiries with regard to the "best time to start Cucumbers and Tomatoes for fruiting in March," as so much depends upon the means at your command. Supposing you have a Cucumber house with the proper amount of top and bottom heat, the seed may be sown during the first week in January. It would germinate if sown earlier, but the seedlings obtained would, during the dull midwinter months, become drawn and weakly, and be more liable to be infested with red spider and other insect pests than are those raised at the time named and grown without any check. The Cucumber seed may be sown singly in 3 inch pots, using light loamy soil, and plunged in a brisk but not over-moist bottom heat, as excessive moisture, either from the bed or administered, will destroy the seed. The seedlings should receive as much light and air as possible, and will require to be lightly supported with stakes. In order to have them as strong as possible at planting time, shift them into either 6-inch or 8-inch pots, and from these transfer to beds or heaps of soil previously prepared, so as to become thoroughly warmed, performing the operation in each instance before the plants are much root-bound. The subsequent treatment given being favourable, no difficulty ought to be experienced in obtaining fruit, say about the middle of March. It is a mistake, however, to force very hard or to crop young plants heavily, both being very weakening in effect and tending to shorten the duration of the crop, the ultimate gain thus being very doubtful. The most popular variety with the market growers is Rollisson's Telegraph; and another very prolific and suitable variety is Kelway's Paragon.

Early Tomatoes (*Idem*).—To have ripe Tomatoes in March you ought to have strong plants well and finally established in either beds, boxes, or large pots (giving the preference to the latter for early work) by the first week in January. These should be kept growing briskly, the pots being near to the pipes, and the temperature of the house ranging from 60° to 65° by night, and 10° higher in the daytime. Train to single stems, rub out side shoots, carefully impregnate the first blooms, give abundance of liquid manure, and cut the fruit on the first signs of cracking. If these strong plants are not to be had, do not attempt to secure ripe fruit in March; far better will it be to sow early in January, and thereby secure strong plants from which heavy crops may eventually be taken during April and May. For treatment of these see reply to "R. D.," page 269 of this volume. Hathaway's Excelsior and Earley's Defiance are two very suitable varieties for the work. Conqueror is a very heavy cropping variety, but the colour, unfortunately, injuriously affects its sale. If, however, it is really imperative that ripe Tomatoes be had in March, we should advise the attempt being made with one of the smaller varieties, of which probably the best is Vick's Criterion. From single plants of this variety fruited in 8-inch pots comparatively heavy crops may be taken, which need not, and in your case should not, interfere with the growth of the main crop of heavier and more saleable varieties.

Early in December, or even earlier, sow seed thinly in well-drained 6-inch pots, using light sandy soil and plunging in heat if possible till the seeds have germinated. Before the seedlings are much drawn transfer them to warm shelves near the glass, and when in rough leaf pot off singly in 3-inch pots, placing the plants down the sides of the pots and carefully filling in the soil up to the seed leaves. If returned to bottom heat they will more quickly recover, but should, as soon as this is found to be the case, be again placed on the shelves, the aim being to keep them sturdy. When well established shift them into the fruiting pots. The soil used may consist of two parts of turfy loam to one of well-decomposed manure, which previous to using should be thoroughly warmed. From this time the best place to grow and fruit them is on the front staging near to hot-water pipes. Train to upright stakes, rub out side shoots as they appear, and stop beyond the third cluster of bloom. When the bloom is set give moderately strong liquid manure at each watering. These miniature varieties, are well adapted for growing on the end stages and back shelves of early vineries, Peach, and other forcing houses.

Names of Fruit (*F. D., South Wales*).—The Pear is Caillot Rosat. (*G. B. C.*).—The Plum is Sandall's, a variety much grown in the market gardens of Middlesex. It certainly is not what it was intended for. (*K. E.*).—1, Waltham Abbey Seedling; 2, Holland Pippin; 3, Old Orange Pippin; 4, Lewis' Incomparable; 5, Norfolk Bearer; 6, Loan's Pearmain. (*W. N.*).—Red Autumn Calville. (*H. J. F.*).—Tower of Glamis.

Names of Plants (*W. K. B.*).—The spray was much crushed, but we think the Bonvardia is Humboldtii corymbiflora. B. jasminiflora has much larger flowers, at least when the plant producing them is well grown. (*W. C. B.*).—1, Pleopeltis percuta; 2, Gymnogramma L'Herminieri; 3, Platyloma rotundifolia; 4, Gymnogramma peruviana argyrophylla; 5, Selaginella casia; 6, Davallia dissecta elegans. (*Newton, Bristol*).—Tacsonia mollissima. (*O. P.*).—1, Quite insufficient for identification; 2, Fuchsia microphylla; 3, Polystichum angulare; 4, Probably Escallonia macrantha, but specimen very small. (*G. B. C.*).—1, An Asplenium, but the specimen was so very stunted and imperfect that its name could not be determined; 2, Adiantum macrophyllum.



POULTRY, PIGEON, AND BEE CHRONICLE.

ROTATIONS FOR CROPPING LIGHT SOILS.

(Continued from page 338.)

WE have referred to the rotation of cropping a light land chalk hill farm with water meadows, &c., attached, and calculated for keeping a large breeding flock of sheep. We will now consider a farm without meadows, and consisting of arable land only, but situated amongst the chalk hills. We will discuss the system of cropping adapted to it when cultivated with the view of maintaining a large flock of breeding ewes or of store wether sheep. To illustrate the rotation of cropping, &c., we will again describe a farm of 450 acres, and as there will be neither meadows or down land for the sheep to fall back upon at certain times of the year we must make it a four-course rotation, excepting 50 acres, which will be laid into Lucerne and Saintfoin; 10 acres to be laid down with Lucerne for a permanency, and situated nearest to the farm premises; also 40 acres to be laid into Saintfoin for four years, which will then be broken up for tillage, and exchanged for the same extent of land taken out of one of the Grass or Clover lains of the rotation. We have then to deal with 400 acres of arable land. 1st course, Wheat; 2nd, green crops and roots; 3rd, Lent corn; 4th and last course, Clovers and Grass sown in the Lent corn. Now, one of the chief features of this rotation is the adoption of the growth of Lucerne and Saintfoin, which must be considered practically as the substitute for meadows and down land. The first course will consist of 100 acres of Wheat, the preparation for which will be described more particularly in the last course. The second course will also consist of 100 acres, 50 acres of which will be cropped with green fodder crops, such as Rye, Trifolium, Vetches, &c., followed by Swedes and common Turnips. The other 50 acres of the foulest land will be autumn-fallowcd, so that the seed for root crops, especially Mangolds, may be drilled without spring ploughing—not only because the seed may be gathered earlier, but because the working of the scarifier only in the spring retains the moisture, so essential to the

successful growth of roots upon such light dry soils as compose the chalk hill farms.

The feeding off these root crops in good time is of the highest importance, in order that the Lent corn may be sown early, which in the case of a dry flock like wether sheep may easily be done, because larger numbers may be kept for a time, and then the numbers of the stock may be adjusted by sale to the food. Not so with the breeding flock, in consequence of its being necessary for a profitable result to retain the lambs and off-going ewes until certain periods of the year when they are at maturity for the markets in which they are to be sold. On some chalk hill farms at a great elevation, or more than usually exposed, it will be necessary to leave out the Mangold crop, because under such circumstances, particularly in the north midland and western counties, it cannot result in a full crop. We have therefore to recommend that, in the absence of Mangold, Swedes be substituted in the root lain, of varieties which will not only stand the winter without injury better than many others, but can be preserved to a later period in the spring—namely, the green, white or bronze varieties. Either of these will do when we can obtain them of a deep yellow colour inside and a clean growth, for if the seed is sown after the 10th of June they will retain their feeding value under treatment during the last half of the month of April and the first half of the month of May, which is a matter of so much consequence that we have on various occasions resorted to the plan of crowing down, after the greens have run up about 12 or 15 inches, by cutting off these close to the root. In this way we have retained the roots in the land into the month of June; nevertheless, if a full stock of ewes and lambs are maintained on the farm the lambs, when allowed to run in advance of the ewes, will sometimes pick off the greens and keep the roots in good feeding condition without extra labour. About 10 acres of Swedes reserved in this way will enable all the Lent corn to be sown in good time, and will only diminish the lain to 90 acres; we have therefore, after the Swedes are fed off, to crop this 10 acres in another way, and so that it may fall into the Wheat lain in the next year. Our plan is, as fast as the Swedes are fed off to plough and sow immediately a mixed crop of 1 lb. of Rape seed and 2 bushels of Italian Rye Grass seed of foreign growth per acre, mixed and sown broadcast. We prefer this plan to sowing Turnips after the Swedes, because this Grass and Rape will give abundance of food in the autumn, winter, and in early spring, after which it is laid up and cut for hay, then ploughed, and pressed, and drilled with Turnips to be fed off, and the land sown with Wheat.

The third course will be Lent corn, &c., 100 acres, 90 of which will be seeded with Clover and Grasses in the Lent corn, 50 acres with Red Clover Alsike and Giant Saintfoin for hay, and 40 acres with Dutch Clover and Italian Rye Grass for feeding, this seeding to be reversed in the next rotation. The Clovers, &c., will be cut twice for hay, and the land bedunged and sown with Wheat after one ploughing and pressing. The 40 acres sown with Dutch and Italian Grass will, together with the 10 acres of Grass and Rape above alluded to, make up 50 acres, to be ploughed and pressed at midsummer, and sown with Turnips to be fed off by sheep, a liberal dressing of superphosphate having been drilled with the seed, and a good allowance of cotton cake allowed the sheep whilst feeding will not only answer the purpose as profitable management of sheep, but will be a judicious mode by which the land is made rich enough to carry a full crop of Wheat, the whole of the farmyard and stable manure having been applied to the 50 acres of Clover lain. Thus it will be clear that we have 190 acres of cereal crops, and one of the largest provisions for a breeding flock of sheep which can be advised upon a cold hill farm of the given area or farm of 450 acres. The rotation as just concluded refers more particularly to a poor chalk soil in an elevated position.

We shall, however, now consider a rotation for a farm on a chalk soil, which although very thin and light is of a kind, soft, and malmy texture, and situated in the southern or south-eastern counties. We will again take a farm of 450 acres for illustration, although it actually represents the system pursued by one of the oldest and most practical farmers within our acquaintance. He follows a system peculiar to himself, whereby he is enabled to keep a very large quantity of stock, and to take three corn crops in six years. The foundation of his system is keeping the ground constantly in action, and growing great quantities of good sheep food whilst bringing the land into the best possible condition for cereal crops. This farm consists of 900 acres; but in order that the home farmer may more easily compare the system with those which we have given before, and those to which we intend to refer hereafter, we will take an acreage of 450 acres. On this farm is a capital pasture or down on the high ground, and the best managed of any we have ever seen, which is done

by taking the produce without close feeding on the open down system, the sheep being allowed only to feed on it within shifting folds, similar to the ordinary plan of folding off green crops or roots, and in this way the Grass is never eaten out so bare as to injure the herbage or finer Grasses. We will call this pasture 30 acres, which will leave 420 acres, which under a six-course will give 70 acres in each. The rotation may be described as—1st, Wheat; 2nd, Barley; 3rd, Turnips, Swedes, and other roots; 4th, Barley; 5th, Clover and Grass; 6th, old Clover and Grass lea. The courses or lains will then consist of 70 acres each. The first course Wheat will be sown after Clover and Grass having laid two years in part, the other part being after Turnips, grown after the Grass lea ground had been ploughed and pressed at midsummer, the Clover lea part being dunged from the farmyard, the other part being fed off with Turnips, and the sheep eating cake, corn, &c., then forms a full and well-tilled course prepared for Wheat. The second course is Barley, clean-ploughed and laid up for the winter, so that it may not require ploughing in the spring, the scarifier only being used to obtain a tilth, except in the case of a field being foul, it is then fallowed in the autumn. Now, the Barley grown is drilled with artificial manures, and yields corn of capital malting quality, and far better than it could be as a rule when taken after roots, because it can be earlier sown, but not on account of the treading of the sheep, for the soil we are speaking of does not suffer by treading, but rather the reverse. The third course will be root crops, the whole 70 acres being seeded in the autumn for green crops, such as Rye, Trifolium, and Winter Vetches; these after being fed off by sheep eating cake, &c., upon the land, give a good preparation for roots, Mangolds following Rye, for it must be remembered that on this soil, the climate being favourable, Mangolds succeed very well. Swedes follow the Trifolium and the earliest-fed Vetches, the remainder being sown with hybrid and common Turnips. The fourth course is Barley, or the latest cleared land is sown with white Waterloo Oats or drege. Half this course is seeded with 8 lbs. of Broad Clover, 4 lbs. of Alsike, and 2 bushels of Giant Saintfoin per acre; the latter takes extremely well, in consequence of there being no regular Saintfoin course as pursued on some farms, and this mixture not only affords hay of capital quality, but an excellent layer for the second year. The half of the lain is sown with Dutch and Alsike Clover seed, in admixture with Perennial Rye Grass, Italian Rye not being approved on this farm, where constant feeding is going on, it being said that the sheep do not so well in feeding off the second and third foldings of Italian Rye Grass, and often refuse it. This is a strong argument against it, as in this case the Grass is fed off by sheep for at least eighteen months, and although it is not often done we think that Giant Saintfoin in mixture with the Grasses for feeding would be an improvement. It is, however, held that if Saintfoin formed part of the Grass seeding it would not take so well in the next course, when the land would come in for seeding with the Clovers and Saintfoin in admixture. The sixth and last course will be Clover and Grass lea, the latter being broken up in summer and cropped with Turnips, as the preparation for Wheat, as above stated. It will be noticed on this system of cropping that half the arable land will be in cereal crop, two-thirds of which will be Barley, and it must be admitted to be judicious that it is so arranged, for this soil is as well adapted as any we could name for producing a malting quality. The other third is cropped with Wheat, and although under the system adopted only one crop is taken in six years, and although the Wheat grown is generally a full crop, yet it has for some years been exceeded as an acreable money return by the Barley crop. Taking this system as a whole it exhibits great practical knowledge and judicious management, and we can recommend it with great confidence to the careful consideration of the home farmer.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This has been greatly relieved during the period since harvest by the judicious employment of steam power in the cultivation of land intended for early cereals and root crops next spring. Not only has a vast deal of the heavy work of cultivating been done, but it has been effected within the shortest time that is possible for autumn preparation of the land, and particularly as we never can reckon beyond a certain number of days in the most favourable seasons. We have not only the certainty of the autumn rains commencing during the month of October more or less, but the practical fact that the seed time for the autumn-sown Wheat must during that month receive a large share of attention. By steam power, however, the ploughing and pressing of four or more furrows upon Clover lea ground can be done at one pass of the plough in ridging up the land for Wheat. This circumstance also enables the home farmer to continue the autumn cultivating to a later period, in consequence of the great amount of work in ploughing and pressing

for Wheat after the autumn rains have commenced; in fact, upon any dry soil the weather scarcely ever hinders this work on lea ground, even at the latest period for sowing winter Wheat. The selection of seed Wheat is now, as ever, a matter of primary importance, not only of the varieties to be sown but the quantity of seed per acre. The latter, however, is not so much a vexed question as it was some years ago, as it has now resolved itself into a question dependant upon the time of sowing. The earlier Wheat is sown the less seed may be sown: the state of the land and nature of the soil will have its effect. In ordinary cases the quantity may be said to vary from 2 bushels to 3 bushels of seed per acre, the latter quantity to be used after the middle of November.

The varieties of Wheat raised and cultivated for the purpose of being sold for seed are more numerous, and much more pains and trouble are used in their cultivation and selection than at any previous period; for we have excellent varieties as pedigree corn offered us by Major Hallett, and these are well worth attention, especially as it is now the fashion to drill at 10 or 12 inches between the rows. All the superior selected sorts will bring larger ears, and consequently yield better at a wider distance or fewer plants to the rod. We have also a capital collection of varieties offered by Mr. E. Y. Oakshot, seed merchant of Reading, Berks, and also fine varieties offered by Messrs. Webb. The former of these seedsmen are selling capital samples of their Champion white Wheat, also the long-eared and square-eared rough chaff white Wheat. We have seen this year 14 sacks and upwards of the latter grown upon thin light land; in fact, the home farmer should obtain a catalogue of seed corn from the vendors, and he will soon see from the testimonials the varieties which are most likely to suit the soil he has under his care. Although these well-selected varieties are sold much above the ordinary market price of millers' corn, yet by sowing a sack or a quarter only the increase will put him in possession of a considerable quantity of seed Wheat another year. This has been our practice, and we recommend it. There are various specifics now for cleansing seed Wheat from smut, and also deterring birds and insect enemies from attacking the young plant, worth attention, and should not be omitted in preparing the Wheat for seed.

Hand Labour.—This will now be required in assisting the taking up and storing Potatoes and also Mangold. The Potatoes are more or less tinged with the disease, therefore on taking them up they should be assorted, those affected to be used immediately for feeding milch cows and store pigs. The size just under the best market tubers may be saved for seed; but these and the marketable tubers should be stored away in a heap and covered with straw in readiness to be examined again at the end of four or five weeks, before being finally heaped and covered securely for the winter. Seaweed, border grass, short straw, &c., is best to place next the tubers before being thatched and earthed over. Some farmers advocate the earth being put next the short straw or seaweed and the thatch on the outside of all the materials used for covering the store heaps. In the light work of sorting and moving Potatoes the women ought to take part, for we have always found that willing hands will do more than the men at this kind of labour. The Mangolds should now be taken up and stored daily, for we have always found them keep best in heap when put away as fast as they are taken up. The leaves are a valuable green fodder, and analysis proves them more nutritious than the outside leaves of Cabbages. Shepherds in the northern and midland counties will find the ewes of all the long-woolled tribes offering freely to the rams, and it is well to number and stamp the ewes every week—No. 1 and 2 representing the first and second week—as fast as they are seasoned during first, second, and third week, and so on, in order that at lambing time the animals may be specially cared for and separated for special care in accordance with the time of lambing. The horned Dorset and Somerset ewes are just now ready to lamb, many of them being due in a few days. These will require special attention, as they rear so many twins, some of which are frequently weak whilst young. Dairy cows with young calves should now be bought for yielding a supply of milk in the winter months. Fattening oxen in the boxes and stalls must now live at full head, receiving a liberal allowance of cake, bean meal, &c. These should always be given in the meal state and mixed with cut roots, Cabbage and Carrots being ripe first for use. Fattening pigs should now be pushed on, and the cheapest and most profitable way we have found to be by pulping the roots, and mixing the barley meal, maize meal, &c., with the roots (using no water), Cabbage, Carrots, and Mangolds in succession, gradually reducing the roots and increasing the proportion of meal as the animals approach nearer to maturity.

FORTHCOMING POULTRY SHOWS.

NEVER a week passes without some of our readers and poultry correspondents writing to ask our advice about where they can show their birds to advantage. We are always pleased to explain to novices the special attractions which particular schedules offer for their special favourites. For instance, a breeder of some rather rare variety wishes to know where they can best be introduced to public notice. We at once explain that a schedule must be sought where the residuum for the variety class is necessarily small, and where Malays, Leghorns, Black Hamburgs, Silkies, and other well-cultivated kinds do not all come into it. Such

information is absolutely needed by the uninitiated. More than this it is not our province to give, and we frequently now decline to recommend shows. Where we see specially good arrangements we always commend them, and where carelessness and confusion we always fearlessly expose it. To do more than this is not the work of a newspaper. We will, however, attempt to give a short summary of the schedules of the many forthcoming shows by which exhibitors may be helped in making their selection. We do trust that none will from over-ambitious desire of prizes attempt to show the same birds at even half the places where tempting schedules are put forth. It is most impolitic to wear out the constitutions of good birds with much showing; but worse than this, it is cruel.

From now till Christmas there is at least one large and well-known exhibition fixed for every week. As our pages are preparing for the press well-classified exhibitions are being held at Merthyr-Tydvil and Stratford-on-Avon. We do hope that no other committee will follow the strange arrangement of the latter Show, where all the exhibits had to be delivered by noon on Monday. Some similar arrangement, but not on Monday, was once tried at Oxford, caused much inconvenience and delay to the Judges, and failed. That such a plan should be attempted, not in a central and accessible town, but in an out-of-the-way place on a cross-line of rail, seems to us most unwise. On Saturday in this week and on Monday in next comes off the Burton-on-Trent Show for Pigeons and cage birds, with good classes and eight prizes in each. We pity the Judges! On the 21st and 22nd will take place a splendid show of Pigeons, Bantams, and cage birds in the Southport Pavilion. We say a splendid show without knowing anything about the number of entries in each class, but a show where the classification is so good cannot fail to be fine. So many subvarieties of Pigeons are commonly mixed together in a single class that young fanciers are quite puzzled; but where no less than nine classes are offered for Carriers, the same number for Barbs, nineteen for Owls, ten for Jacobins, three for oriental frilled Pigeons, nine for Tumblers, ten for Dragoons, and thirteen for Antwerps, a beginner may gain more practical Pigeon lore in a day than by much reading. Other shows that are pending will be referred to in a future issue.—C.

THE ROSS POULTRY AND PIGEON SHOW.

THIS Show was held on Tuesday in last week in the Town Hall, a building admirably adapted to the purpose. The exhibition of Pigeons was extremely good, that of poultry by no means such as could have been wished. We think that in the case of poultry the Committee made a mistake in offering four small prizes instead of two of larger amount. The cost of carriage is heavy, and exhibitors like other people must think of £ s. d. Pigeons pack closely, and are light, and so many entries are often found even when the prizes are quite nominal. *Brahmas* had but one entry in each class, *Cochins* a few more; the first Buff hen was a handsome bird and would win in better competition. *Dorking* hens were better than the cocks; we admired the first dark bird, and the second Silver-Grey was large though poor in colour. *Game* were better; the first and second cockerels *Black Reds*; the first pullet of the same variety was a stylish bird; second and third, too, very fair *Brown Reds*. *Spanish* there were none, but a good pair of *Black Minorcas* did duty for them and took second prize. *Hamburgs* were few; the Duke of Sutherland's Silver-pencils were by far the best pair, the cockerel very clear in colour and neat in all points. Fair *Houdans* were first and second in the French class. In the Any other variety classes cocks were conspicuous by their absence, but some good Silver Poland hens won. The chicken classes were much better, and better filled; Mr. Bloodworth's two Buff *Cochin* pullets being beauties. The first *Brown-Red Game* cockerel, too, was a bird worth looking at. *Bantams* seem the special fancy of the district. There were no less than thirty-one *Game Bantams* entered, and some of the winners were very handsome birds, though the failing of the present time seems size; many of the best *Game Bantams* we see as to form are immense, doubtless from having no remote relationship to large *Game* fowls. The *Black Bantams* were of course good at Ross, Mr. Phelps' birds taking first and second; the cock in the second pen was a most diminutive real Bantam, but the beauty of the first cock's tail won the pair their position. The class for Bantams of Any other variety brought a beautiful collection. First were *Cookoos*, as perfect in colour as we have ever seen any; second, nice *Black Booted*. There were some fair *Silverlights* in the class, but far too large. Two magnificent *Bronze Turkey* cocks were very even, the first slightly the most massive bird.

Geese were represented by one pair of Grey Chinese, which are certainly a very pretty variety. Why people commonly call them *Spanish* we do not know. *Ducks* were a good class; *Rouens* first and *Aylesburys* second. As usual now a large array of *Pekins* appeared.

PIGEONS made a very different show. There were nearly three hundred birds, and the quality was as good as is seen at any but the very best shows. *Carriers*.—As usual Mr. Baker won first with a *Black*, second with a *Dun*, both very good birds; the form of the

first specially struck us. *Pouters*.—The three first were good birds, the rest not remarkable; the first a Red-pied, very slim in girth and all round a fine bird; second a Blue, third a Black. *Barbs* were one of the most remarkable classes we have ever seen at any of the smaller shows; first a magnificent Yellow, second and fourth fine Blacks, third a good Red. *Tumblers*.—Short-faced.—The winners were chiefly Almonds; first very good in head. *Muffed*.—First a Rose-wing, second a Black Beard, third a Blue. Long-faced.—First a good Red Mottle very rich in colour, second a Silver Bald. English *Owls* were a large class. First a Blue, particularly deep and good in colour, and with good head properties too; second a beautiful Silver, third a Blue with a very good frill, a point in which many birds were deficient. Foreign.—First, second, and third White, the first winning easily; fourth a Black. *Fantails* were few; the first and second were very fair birds and in fair condition. The Judge did not award more prizes, as the rest were deep in moult. *Jacobins*.—Red or Yellow.—All the winners were Red, the first good all round with a short beak; second good too, but less blooming in condition. In the Any other colour class a beautiful Black was first, failing a little in colour, but perfect in hood; second and third pretty Whites. *Turbit*.—Blue or Silver.—A remarkable class; several birds generally in the prize list had to be content with high commendations. First a Blue very remarkable in head properties, second another Blue good in head and frill, third a fine Silver, fourth a Blue. Any other colour.—First a Red, a grand bird all round; second another very good Red, and third a Black. *Magpies* were a capital and very large class. First a Black, extremely rich in colour and clear cut; second and third good Reds. *Archangels* were a fair class, but in a very poor light. The Judge had to carry them two at a time to the light for comparison. First was very good in both Black and Bronze, and second not far behind. *Trumpeters* were capital. First a Black in good healthy condition, with a most symmetrical rose and splendid foot feathering; second, third, and fourth all mottled, with very little to choose between them, all fine in rose but not equal to the first in foot feather. *Dragoons*.—A class of twenty-two. First a long rich-coloured Blue, the only one in the class with a really good dark eyelash; second a stylish Blue, a smaller type of bird; third a Yellow. *Antwerps*.—Short-faced.—A most superior class, the winners all very fine in head. Long-faced, too, were little behind them, first and second winning easily. Any other variety was a most excellent and interesting class. The Judge awarded an extra fourth prize, and considered many birds worthy of very high commendation. First was a Blue Priest, second a Blondinette, third a Satinette, fourth a Blue Pigmy Pouter, and extra fourth a particularly frilly Red Frillback. A good Blue Swallow, a Fire Pigeon, and a Black Priest all deserved their notices. The day of the Show was unfortunately a damp and dull one, after a drenching night, and the attendance of visitors was very poor.

The Judges were for poultry, the Rev. Grenville F. Hodgson, and for Pigeons, Mr. O. E. Cresswell. There was a pretty show of cage birds, which Mr. P. R. Spencer of Hereford judged.

VARIETIES.

NEW BOOKS.—We have received the following books from the Bazaar Office:—*Notes on Game and Shooting*, by J. J. Manley M.A., an attractive and admirably finished volume of nearly four hundred pages, which pleasantly tells much that is interesting about game furred and feathered, and will be welcomed by sportsmen. The author writes learnedly on his subject, and combines with much technical knowledge an agreeable mode of expression. In addition to the table of contents the book ought to have had an index. *Stock-keeping for Amateurs*, by W. H. Ablett, a neat volume of 186 pages, treats concisely and well on the management and diseases of the various farm animals. *Rabbits for Prizes and Profit*, by Leonard U. Gill, is similar in size and style to the foregoing; it contains illustrations of the different varieties of Rabbits, and gives reliable information relative to their management and diseases. On gardening subjects we have the *Hardy Fruit Book*, by D. T. Fish, who has given a great deal of useful and interesting matter in the 276 pages. *Popular British Fungi*, by James Britten, F.L.S., an excellent little work, both useful and instructive. *Orchids for Amateurs*, by the same author and W. H. Gower, contains descriptions and illustrations of the most popular Orchids, with brief but sound cultural details. *Greenhouse Management*, by W. J. May, refers to the ordinary routine of culture of plants usually grown in greenhouses.

— **THE PRICE OF MILK.**—The wholesale price of milk varies with the season, though the public seldom gain the benefit of a reduction. The farmer usually sells his milk by the "barn gallon," as it is termed—that is, seventeen pints to the gallon, or half a pint over-measure at each imperial gallon. Many of them are not aware that it is illegal to sell by such measures, and we would refer them to the Weights and Measures Act, 1878, 41 and 42 Vict., c. 49, sections 15

and 19. The selling by a barn gallon is, of course, an old custom, in which the extra pint was thrown in—for the same reason that extra lbs. of cheese are thrown in at the cwt., and extra ozs. of butter at the lb.—in order to improve the bargain to the buyer. At first these additions were part of the bargain, but they soon became a custom. Other farmers, again, sell their milk at so much "a dozen"—that is, a dozen quarts; this custom is not illegal, but it is rather clumsy. A few sell by the standard imperial gallon, which we think is the best. Milk is generally cheapest in the months of April, May, and June, when the price the farmer receives, less the carriage, is 1s. 4d. per barn gallon. In the following three months he gets 1s. 5d.; in October and November 1s. 8d.; in the next three months 1s. 9d.; and in March 1s. 8d. These are the actual prices contracted for by one who has been in the trade many years, but they are subject more or less to variation in different cases, in different years, and in different localities. The carriage from the midland counties to London is usually 2d. per barn gallon, the empty cans being returned free of charge.—(From "*Dairy Farming*," by Professor Sheldon, for October.)

— **POTATOES IN AMERICA.**—The Potato crop of the country will, it is believed, reach 125,000,000 bushels this year, valued at 100,000,000 dollars. New York, as usual, leads in the cultivation of this esculent, producing not less than 25,000,000 bushels. Illinois comes next with 12,000,000 bushels, and Iowa next. The six New England States produce about 25,000,000, Maine taking the lead in this direction. Her crop of Potatoes last year was estimated worth 4,100,000 dollars. The Early Rose is now confessedly the popular Potato throughout the country; neither rot nor beetle has impeded its march. Its cultivation began in the eastern and middle States about ten years ago. Another Potato, the Prolific, is also sought for on account of its good flavour and evenness of surface. In the New York market the Mercer and the Peachblow at present dispute the palm with the Early Rose, but the last-named commands the highest average price. The Peachblow seems better adapted to a warm climate than the kinds previously named.—(*Prairie Farmer*.)

— **THE ISLINGTON DAIRY SHOW.**—The show of dairy stock and produce which opens at the Agricultural Hall on the 26th of the present month promises to be one of unusual excellence. The entries are largely in excess of those received for the exhibition of 1879 there being forty-six more cows and forty-one more goats, besides a large increase in the quantity of utensils and produce. In the department for Dutch butter and cheese the entries have been so large that the Committees have decided upon awarding extra prizes, and also to still further subdivide the classes, in order to embrace the various makes that are to be exhibited from Holland.

— **CHESHIRE CHEESE.**—A cheese fair was held at Chester on Saturday, at which from 45 to 50 tons were pitched, mostly of medium quality. The prices for the commoner sorts ranged from 50s. to 60s. per cwt., while medium fetched 70s., and a few prime dairies 74s. The demand was rather slack, and as a consequence prices showed a decline on those quoted at the last fair of from 3s. to 4s. per cwt.

— **AGRICULTURAL PROSPECTS.**—Another spell of excessive rain-fall has brought outdoor operations to a standstill, and in many districts of the midlands the damage done by floods has been very serious. Prior to this latest deluge the land was working exceedingly well, and seldom have the stubbles turned up in better form. Now, however, all the clays are very wet, and preparation for Wheat-sowing must be delayed. Portions of the late harvest still remain to be secured, and must now be considered of very little value. Disease appears to be showing itself amongst Potatoes in Durham to a serious extent. This crop in the later districts is now being secured as fast as weather will permit, and it is everywhere spoken of as an unusually heavy one. Pastures are now very full of grass, and both grazing and dairy stock are doing well. Flocks are not well spoken of by the majority of our correspondents, and there is a great want of confidence amongst purchasers in most of our important English fairs.—(*Mark Lane Express*.)

— **AGRICULTURAL DISASTERS IN KANSAS.**—Under the above heading a daily paper has published the following:—In New Mexico

and Southern Colorado no rain has fallen for thirteen months. River beds that have never run dry before are without moisture for hundreds of miles; the grass has ceased to grow, and nothing but the Cactus is to be seen on the plains in the way of vegetation. As a consequence the cattle and sheep, which formerly found a capital living here, are dying by hundreds. Unwilling to risk further loss by waiting for rain, the stockowners have determined to transfer themselves and their stock, numbering 200,000 head of cattle and 250,000 sheep, to a more favourable district. The exodus began last April, when a drove of 8,000 cattle and 12,000 brood mares, belonging to Judge Hilton, the "cattle king" of San Luis Valley, New Mexico, set out for the Black Hills country. They arrived at Fort Fetterman in the beginning of September. Other droves belonging to other owners followed in rapid succession, and it is said that from Powder River in the north, to the Rio Grande in the south, there was for some weeks, an almost continuous line of cattle and sheep.

FOUL BROOD.

AFTER all my experience with foul brood I am still at as great a loss as ever to say what is the cause of it. Like some of your readers I thought it was caused by the introduction of the Ligurians into my apiary, but then I had it previous to that time; and besides, a neighbour had it in his long before we ever heard of a Ligurian bee. I am as convinced as ever that chilled brood is not the cause, but one thing is certain—it can be cured, though only with much trouble. For a number of years I had been experimenting with it by partially cleaning the skeps by washing them in hot water and soft soap, and boiling all the honey before I gave it to the bees, and taking away all the old comb every year, leaving only the new; but with all my care my stock was decreasing every year. I at last resolved that I would adopt similar means to those of the late Mr. Woodbury. I began by burning every piece of old comb and everything not connected with the hives themselves, which consisted of the Woodbury hives and some Stewartons.

All those which were empty of bees I boiled in a large copper for three or four minutes—skeps, broods, bars, and everything connected with the hives, taking the precaution to do it in a cold frosty day in winter, so that there could be no chance of any bees coming near me. When the operation was going on a man stood with a fork keeping all down in the water, and it boiling all the time; they were then washed in clean water but not so hot, and at last in cold, and then they were dried thoroughly and kept in a shed in which they had plenty of air by day. Some of the skeps were made with straw sides and tops, as Woodburys. Those after being dried I painted over the straw with white lead; and in passing I may remark that the bees do as well in those painted as in the wood or the straw without paint. In case of failure in cleaning the old skeps I obtained some new common straw ones, and put swarms in them the same season, 1878, that I put the swarms into the boiled Woodburys, which gave me two chances: if they were not clean by boiling, they might be cleaned by putting them into new straw hives. It was giving me two strings to my bow. When fed they had nothing but pure sugar. All my old honey and combs I had destroyed. When they were examined in the autumn I found the Woodburys were all clean except one. Why that one I cannot tell, they were all treated alike in every way. The straw hives we could not be so certain of as we could not see all the cells, but we thought they were clean, and found it to be so this spring when we broke them up after they had swarmed and all the bees driven out. In the beginning of June this year I shook nearly all the bees from the Woodbury skep which had the foul brood into a clean Woodbury, placing the skep with the foul brood, combs, and bees into a vinery for twenty-one days to hatch out the brood. The skep was lifted out of the vinery every good day, that the bees which could fly might have an airing, and kept in the dark while in the vinery. As soon as they were hatched they were added to the one they were taken from, and all the comb immediately destroyed, and the skep sunk over the head in water.

I confess I was afraid the experiment would be a failure, and that it would not be free from foul brood; but after a careful examination of every comb the other day I am glad to say there is not a single cell of foul brood in my twelve stocks; they are now in as good condition as I ever saw them. That same skep gave me a super of 21 lbs., and has 50 lbs. in the skep still. It will be seen that I followed very nearly the course Mr. Woodbury recommended, with the exception of placing the bees in a clean skep for two or three days before they were placed in the skep they were to remain in. Had I failed I would have adopted

that plan before I finally gave it up, as it was a matter of some consideration to burn about twenty otherwise good skeps and start with a new lot, when they, too, might have foul brood.

A neighbour here many years ago cleaned his in the same manner as I have attempted to describe, and was also successful. He has now fifty stocks, and has had a hundred in former years, and all perfectly free from the malady.—ALEX. SHEARER.

ANTI-ROBBING PORCH FOR HIVES.

DURING the last two or three years I have had abundant opportunities of testing the working of a simple arrangement I have often recommended to check or cure robbing—that trouble of early spring and late autumn, or indeed of every season when bees can fly but gather nothing. I have so often proved its thorough efficacy, that I have now begun to adopt it as an integral part of my hives, the draw doors of which it replaces. The usual narrowing of the hive mouth, although very helpful to an attacked colony, is not by any means uniformly sufficient. Robbers that have gained confidence by success present themselves with so much assurance that they often slide past the guards and get into the wider opening lying behind the doors before they are known to be intruders. This happening continually will allow a hive after the narrowing of its mouth, if thinned or intimidated before the siege has been noticed, to still suffer from the attack, which will only more slowly, though quite as surely, work its ruin in spite of the precaution taken. If, however, the mouth be not only narrowed but have the form of a tunnel given to it, the would-be thieves are placed at a tremendous disadvantage; they have to pass guard after guard, and the moment they are challenged by one, others are at hand to close with them to do battle or commence the work of ejection. The combatants fill the aperture in the tube-like opening; and the tussel, which by its excitement gives in ordinary arrangements opportunity to sneaking watchers to slip in, bars effectually all ingress. The defenders gain courage; and the marauders, finding it all fight and no booty, in an hour or two seek some new field for their energies. I now cut two pieces of wood about three-eighths thick, 2 inches wide, and 5 inches long. One of these is nailed to the end of another about 1 foot or 14 inches long, and also 2 inches wide. The unfixed piece, now sliding backwards and forwards under the two, gives the size of the opening to the hive as they stand together on the alighting board. The opening is altered in a moment to suit season and size of stock, and has this great advantage, that when robbing begins and it is needful to make the entrance very narrow, it is still the one known to the proper inhabitants, to whom it in consequence does not add the disadvantage of a bewilderment at the very moment home has to be defended against an enemy. The skep as well as the frame hive may be very easily furnished with this before-described form of entrance, which would certainly reduce the chances of stocks being robbed out to a minimum, while those who know how often the cottager loses his "stances" from this cause will not think any help in this direction to be disregarded. Last year I had an opportunity of saving for a primitive bee-keeper a stock from destruction, before which, he said, "the bees was always a-fightin." I found in the somewhat rugged pathway two pieces of thin tile, one of which I broke in half, and placed the parts in front of the skep mouth with the newly separated edges, about a third of an inch from each other. The other piece, by being put over these, formed the protective tunnel at once.

Uncontrollable robbing, it is true, points to some error in management or defect in condition in the hives themselves, and in the apiaries of uninstructed bee-keepers robbing is sometimes a blessing in disguise, as two stocks, each singly too poorly provisioned to winter, will first fight and then fraternise, and deport the whole of the stores from the hive to be deserted to that of the attacking party; but this, though true, but represents the exception. In all well-eared-for apiaries robbing is not only a nuisance but a loss, for which not one shred of countervailing advantage can be pleaded. The importance of preventing rather than curing robbing is enhanced by its tendency when commenced to rapidly increase until honest labour seems to be forgotten in the hurry to get booty from others. Its annoyance where many bees are kept is felt in the savage ill temper it infuses into all stocks alike. The wasp, which this season has been unusually troublesome, would find the kind of entrance I am now recommending a bar to progress by no means to his liking.—FRANK R. CHESHIRE, *Acton*.

A FIGHT WITH FOUL BROOD.

I AM truly glad to find that our old friend Mr. Pettigrew has given such an emphatic warning of the danger of trifling with

this dread disease. While others are scoffing at it as "imaginary," and doing their best to quiet alarm regarding it, Mr. P., as the result of life-long experience, declares that once it gets a hold it never lets go till destruction ensues. My experience during the past season has been so singular, and I venture to hope so instructive, that I shall break through reserve and tell my tale.

On several previous occasions I have had experience of foul brood, but only in an occasional stock, generally a purchased one, and I had never failed to effect a cure at the expense of the combs and a mere weakening of the stock. A two-days quarantine, a clean hive with comb foundation, and subsequent feeding with salicylic acid in the syrup, had been usually a certain cure. My experience this season seemed to set the results of all previous experience at defiance. Not an isolated stock, but half a dozen at a time, began in early summer to develop traces of foul brood notwithstanding that the acid was being used in the food of all. At first I was alarmed; then I began to doubt if it could be foul brood at all, owing to the fact that the bees were generally clearing out the putrid grubs instead of sealing them over as I had formerly observed. I observed also that many grubs were dying before they were sealed over at all, and others after they had passed into the nymph stage. These appearances led me to think that the trouble was caused by the food, that the grubs were poisoned with salicylic acid. The acid was stopped, but the disease went on. The affected hives were decreasing in strength, and there remained nothing for it but to transfer the swarms after quarantine into clean hives. Suspicion being aroused all other stocks were examined, and most of them exhibited traces of the disease, a few being very bad. All were now treated alike, having a clean shift, and such a melting-up of beautiful combs I never saw. The hives being valuable were used again after a thorough scalding and washing with permanganate of potash.

I now fancied that though I had ruined my prospect for honey I should have no more trouble from disease; but I was grievously mistaken. As the honey season was just fairly in I once more found half a dozen affected stocks. At my wit's end, I resolved to let these take their course till the time for winter packing should arrive, when I might unite the bees of several condemned stocks into one on clean combs. In despair I was almost resolved to apply the brimstone match as a radical cure. All this time I had been keeping a strict look-out among my neighbours' bees, and endeavouring to discover whether any besides my own were affected. Only one did I discover, and it did well after I transferred it. I fancied I knew the condition of every stock within a mile and a half of my own, and this made my case all the more mysterious. I had, however, neglected or forgotten to examine the "laird's" bees about a mile off. Only a few days ago I was reminded of this, when a message reached me from the lady requesting me to examine the bees and see if I could discover why they could get no supers this year. Suspicious of foul brood, I asked for an empty skep into which I might drive the bees of two others to be taken for their honey. The only unused skep on the place was pointed out to me lying on its crown in an open shed, double eked, and full of black ugly comb. On tearing out the latter I was horrified to find it putrid with foul brood. Before waiting an explanation I ordered a grave to be dug into which corruption itself was trampled. The gardener now gave me the history of that skep, and at the same time the solution of my mystery. The stock had dwindled in spring and been robbed out at last. To give free scope to the robbers the skep was set on its crown; a very small remnant of an early swarm had then been introduced among the empty (?) combs. It lived only about five weeks, perishing from foul brood. The limits of the old and new deposits of corruption were very easily observed in the combs. Again the skep with its modicum of fresh honey and renewed putridity was inverted for the benefit of all comers. That my bees had their full share of it was evident from the number of my Ligurians even then working on the Mignonette that grew near the grave where I had just buried as foul a relic of old times as I ever hope to see. I need not say I came away vowing that I would henceforth "heckle" every candidate for Parliament with the query, "Will you vote for a Bill to make the provisions of the Contagious Diseases (Animals) Act applicable to bees as well as sheep, cattle, and swine?"—WILLIAM RAITT, *Blairgowrie*.

OUR LETTER BOX.

Age of Eggs for Sitting (*P. L., York*).—We prefer eggs not older than a fortnight. Eggs much older have produced thrifty chickens, but it is certain, as a general rule, that the older the egg the weaker its progeny. To keep the eggs until you are ready for them put a box in a dry place in your kitchen, not too near the fire; partition the box, so as to hold separately the different eggs of the various sorts; let bran be well dried in the oven and put into the partitions, and cover the eggs with the bran as they are placed in; and this should

be done soon after they are laid. In this manner they will be prolific from a fortnight to three weeks. Always mind to place the thin end of the egg downwards, so as to stand upright. Set your hens in a dry warm place in cold weather, or you will find your mistake out when you look for chickens.

Fattening Fowls (*Housekeeper*).—Oatmeal and barley meal alternately mixed with milk, and occasionally with a little dripping, is good food. The feeding troughs, which must be kept constantly scoured, should be placed before the birds at regular intervals, and when they have eaten sufficient it is better to remove them, placing a little gravel within reach of the coop to assist digestion. Oats and rice are far inferior to oatmeal in their flesh-forming properties. Keeping the birds without food for some hours after they are put up frequently induces them to take it more readily afterwards, but sufficient attention is rarely bestowed on the various details of preparation and supplying the food; hence complaints of the fowls deteriorating in the fattening pen are far from uncommon. Access to water should be allowed at all times. Fattening must be completed in from ten to twenty days, for after that period they begin to lose weight.

Scurf on Head of Cockerel (*W. J. B.*).—Rub the scurfy part with compound sulphur ointment. You will also do well, while this appearance keeps on, to give occasional doses of castor oil—a tablespoonful twice per week. Lettuces are also beneficial, especially those going to seed. Be careful not to injure the blood feathers. The injection of a little hot water will cleanse the ears; you may use a syringe for the operation. Your other birds are suffering from cold. It is curable; the administration of some bread and ale twice per day, and allowing them to drink very little, having no water by them, but only being allowed to sip morning and evening.

Acorns for Cows (*A. R.*).—Acorns will answer for dairy cows, but they answer better for horses, young cattle, breeding sows, and store pigs, because they contain principally flesh-forming and heat-producing properties. They should, however, if given to dairy cows be either cracked or bruised by the root-pulper, as in that case they will be the more easily digested; horses and pigs can masticate them uncrushed. We do not like to venture to give dairy cows more than a quart of acorns at one time, and not oftener than twice a day, but always in admixture (after being crushed) with roots, meal, or chaff. They will also prove a good mixture with linseed cake or cotton cake properly mixed.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1880. Oct.		Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	3	Inches.	deg.	deg.		deg.	deg.	deg.	deg.		In.	
		29.932	48.0	42.9	N.W.	54.8	56.9	33.8	110.8	32.6	—	
Mon.	4	29.785	41.3	39.7	E.	53.0	48.3	37.8	53.5	35.1	0.303	
Tues.	5	29.232	61.4	51.3	S.	52.0	66.0	41.3	83.8	43.0	0.352	
Wed.	6	29.370	50.8	50.0	N.	53.9	60.7	50.5	63.6	49.6	0.645	
Thurs.	7	29.571	54.7	53.3	E.N.E.	58.3	61.2	49.2	75.6	50.0	0.230	
Friday	8	29.732	51.5	50.7	N.E.	53.7	59.2	48.4	84.5	43.6	0.135	
Satur.	9	29.707	51.6	50.3	N.E.	53.4	56.0	46.9	67.2	47.1	0.993	
Means.		29.623	51.3	49.5		53.4	58.3	44.0	77.0	43.0	2.658	

REMARKS.

- 3rd.—Very fine, bright, cold day; starlight evening.
 4th.—Misty dull morning, rain from noon.
 5th.—Excessively warm damp morning, stormy with heavy rain during the day.
 6th.—Overcast showery day; heavy rain for short time in evening.
 7th.—Dull all the forenoon; very fine with sunshine in afternoon; bright lightning from 10.30 P.M. till 5 A.M. (8th), with thunder at 4.30 A.M.
 8th.—Rain in forenoon; fine pleasant afternoon and evening; rain after 9 P.M.
 9th.—Wet day throughout; high wind with heavier rain in evening.
 Considerably colder, with frequent heavy rain.—G. J. SYMONS.

COVENT GARDEN MARKET.—OCTOBER 13.

No alteration this week. Market quiet. Prices remain the same.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½ sieve	2	6	to 4 6	Melons	each	2	0	to 4 0
Apricots.....	box	0	0	0 0	Nectarines ..	dozen	2	0	8 0
Cherries.....	½ lb.	0	0	0 0	Oranges	½ 100	0	0	0 0
Chestnuts.....	bushel	12	0	16 0	Peaches	dozen	0	0	0 0
Figs.....	dozen	0	6	1 0	Pears, kitchen ..	dozen	0	0	0 0
Filberts.....	½ lb.	1	3	1 6	dessert	dozen	2	0	4 0
Cobs.....	½ lb.	1	3	1 6	Plue Apples ..	½ lb.	1	0	2 0
Gooseberries ..	½ sieve	0	0	0 0	Plums	½ sieve	2	6	4 6
Grapes	½ lb.	0	9	3 0	Walnuts	bushel	0	0	0 0
Lemons.....	½ 100	12	0	18 0					

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0	to 4 0	Mushrooms	dozen	1	0	to 1 6
Asparagus	bundle	0	0	0 0	Mustard & Cress ..	punnet	0	2	0 3
Beans, Kidney ..	½ lb.	0	0	0 6	Onions	bushel	3	6	5 9
Beet, Red	dozen	1	0	2 0	pickling	quart	0	0	0 0
Broccoli	bundle	0	9	1 6	Parsley..... doz.	bunches	6	0	0 0
Brussels Sprouts..	½ sieve	1	9	2 3	Parsnips	dozen	1	0	2 0
Cabbage	dozen	0	6	1 0	Peas	quart	0	0	0 0
Carrots.....	bunch	0	4	0 6	Potatoes	bushel	3	9	4 0
Cap-sicums.....	½ 100	1	6	2 0	Kidney	bushel	4	0	0 6
Cauliflowers	dozen	0	0	3 6	Radishes..... doz.	bunches	1	6	2 0
Celery	bundle	1	6	2 0	Rhubarb	bundle	0	4	0 0
Coleworts..... doz.	bunches	2	0	4 0	Salsify.....	bundle	1	0	0 0
Cucumbers.....	each	0	4	0 6	Scorzonera	bundle	1	6	0 0
Endive	dozen	1	0	2 0	Seakale	basket	0	0	0 0
Fennel	bunch	0	3	0 0	Shallots	½ lb.	0	3	0 0
Garlic	½ lb.	0	6	0 0	Spinach	bushel	3	0	0 0
Herbs	bunch	0	2	0 0	Turnips	bunch	0	4	0 0
Leeks.....	bunch	0	3	0 4	Vegetable Marrows	each	0	2	0 0



21st	TH	
22nd	F	
23rd	S	Exhibition of Chrysanthemums in Finsbury Park.
24th	SUN	24TH SUNDAY AFTER TRINITY.
25th	M	Sale of Bulbs at Mr. Stevens' Rooms, Covent Garden.
26th	TU	British Dairy Farmers' Show at the Agricultural Hall, four days.
27th	W	

KEEPING GRAPES.

YOU would find out your mistake if you tried that plan at our place," said a good old-fashioned gardener of more than average experience, on seeing some labourers deluging the inside borders of a house containing Grapes which had finished colouring, and this, too, on an autumn day, which could not be considered a fine one. When the visitor was assured that such work was commonly done on days which were too wet for outside work to be proceeded with his surprise was evidently great, and he made up his mind that Grape-growing was an easy matter excepting in the one locality where he had the misfortune to reside. In the Grape-room, where there was nothing but the natural soil for a floor, the same idea was uppermost. "How could it be possible to prevent the moisture rising and settling on the fruit?" And, again when a house containing ripe Grapes has to be filled with bedding plants, how is the decay of the fruit to be prevented?

It may be useful at the present time to enlarge a little on this subject, as cutting and preserving Grapes by inserting in water a portion of the stem on which the bunch is grown has become almost a general practice, and I think there is a tendency to resort to it unnecessarily early. There are great advantages, of course, in clearing a house of Grapes as soon as they are ripe. The fruit can be kept in a smaller space, and the house can be used for another purpose; but the principal advantage in my opinion is, that the Vines can be pruned as soon as the leaves have ripened, and the process of exhaustion attending the carrying of a crop of fruit, as well as the subsequent bleeding resulting from late pruning, is prevented. The latter advantages, which I put as the principal, can be attained by cutting the Grapes in December, and this I contend for all Vines which are not to be forced is sufficiently early, while for late thick-skinned Grapes, which are to be kept till April or May, the first week in the new year is soon enough. If the fruit is severed from the Vines while there is still a vigorous circulation going on the change is too great, and the fruit will not keep so well as if it had been allowed to hang till some of the foliage had ripened and fallen. As for a dry atmosphere being necessary for keeping or ripening fruit, I thought that idea had been long ago exploded; but old notions die hard, and it may be that others besides my visitor still adhere to it. There would, I imagine, be no insurmountable difficulty in keeping Grapes over the full tank in the Victoria Regia house at Kew, provided I had the control of the heating and ventilating.

The keeping of Grapes in the manner indicated is simplicity

itself when understood. Never allow a very low temperature; and when a high one is unavoidable, give all the ventilation possible before the rise takes place, and condensation, which is the chief cause of damping with fruit, flowers, and plants, will be prevented. It may be said that the more moisture the more danger there is. Perhaps so, but I have never seen a room so dry that condensation would not take place sufficiently to cause injury if you allowed the temperature to rise 10° or 15° very quickly, and I question if a moderately moist atmosphere which is not stagnant is not quite as good for keeping fruit as a dry one. If a fixed temperature anywhere between 35° and 45° could be maintained with a buoyant atmosphere, I imagine nobody would have any difficulty in keeping Grapes; but in the western counties especially we are subjected to great and rapid fluctuations during autumn, and it takes a considerable amount of skill and practical experience to be able to guard against any evil effects from them.

It may be of use to some of your readers if I tell them that it is immaterial which end of the Vine shoot is inserted in the water. Sometimes a bunch is produced so close to the main rod that sufficient stem cannot be cut behind it to allow of its being inserted in the water. When this happens there is always sufficient length of wood beyond the bunch for this purpose, and it will make no difference to the keeping of the Grapes if the wood is placed upside down. I had at least a dozen bunches of Alicante inserted in this way last winter, some of which were the very last to be used, and that was on the 12th of May. I was led to try this plan on hearing that my friend Mr. Wildsmith, at Heckfield, had caused one of his Vines to grow the reverse way by pegging the top down, and when rooted to cut off its end which had the original roots.—
WILLIAM TAYLOR.

COCOA-NUT FIBRE REFUSE.

SINCE old Donald Beaton first made the value of this substance known to horticulturists through the columns of the *Cottage Gardener* many years ago, hundreds of cultivators have proved its worth in various ways. Much was published relative to its merits some twenty years since, but latterly little reference has been made to it in the horticultural press, consequently there are many amateurs and others who are not now well acquainted with the uses of this material. To such an extent is this the case, that a firm which manufactures this refuse largely—Messrs. Chubb, Round, & Co., of Millwall, and who advertise it in the columns of the *Journal*—have received so many inquiries that they have found it necessary to adopt special measures for giving information on the subject. A gardening journal, however, is appropriate for circulating information of this nature, and especially the *Journal* which was the means of introducing the material to the horticultural public.

Now that bulbs are being potted and plunged to induce root-action, it will not be inopportune to direct attention to this valuable garden requisite. For amateurs generally, and those who have gardens in the vicinity of towns particularly, this article is indispensable. It is the best of all substitutes for leaf soil for mixing in composts for potting where a light ingredient is required; as a medium for plunging potted plants in it has no equal; and for propagating purposes it is employed largely and with the best possible results. Most of the Hyacinths, Tulips, &c., that secure the prizes at the principal

London shows pass their first stage under a thick covering of this material, which is preferred to ashes or any other medium. It harbours neither worms nor grubs, retains a uniform moisture, is clean, light, and altogether beneficial, and, further, being so extremely cheap it is surprising that a supply of it is not provided in all gardens. Yet this is by no means the case. It is cheap enough for incorporating with the strong soils of gardens, and rendering them not only more easily workable but more fertile; indeed it was the striking results of its use in this respect that induced Mr. Beaton to test its value for plants in pots, the results of which he communicated to your columns for the benefit of the public. The soil of the then Experimental Garden at Surbiton was so strong, unfertile, and difficult to manage, that it occurred to the clever manager and quick-witted observer, that a few loads of the huge pile of vegetable refuse that inconvenienced the owners of a cocoa-nut matting manufactory at Kingston would improve the staple of his garden. He was readily given as much as he liked to cart away, and as he did nothing by halves he spread it on the ground a foot thick or more and forked it in. The effect was astonishing; the flowers and vegetables that before could only be grown with difficulty now grew luxuriantly, and the value of the refuse was established.

Mr. Beaton has written, "My own garden, which was a poor black sand, is now one of the most fertile in Surrey by mixing two parts of the stuff to one part of the black sand to the depth of 18 inches; but I have it mixed twice that depth. Use it like leaf mould, or in lieu of peat; mulch and mix with it all kinds of soils. Even clay can be made into potting loam by mixing twice its bulk of the refuse with it in two seasons. When mixed spread out as thin as possible to get it well frosted and sunned, and when it is quite dry in July or August run a roller over it, and then give it another frosting and summering, and it will be ready for use. This fibre is free from any acid, saline, or tannin principle. Worms do not like it, and snails and slugs cannot well crawl over it, as it sticks to them, the surface of it being as dry as powder when the weather is anyways dry. It is the best mulching stuff, and 2 inches thick of it on a Vine border would keep the surface of the border as moist as need be a whole season, with no danger about keeping the air or the heat of the sun from the soil. Every plant, bush, and tree over the roots of which a few inches of it are placed, will root up into it in one season, and every root will 'fox-tail' in it, as being so very porous, so retentive of moisture, and so free from taste, smell, and qualities which roots dislike, they run freely in it and feed abundantly on the moisture it holds. The more recent or fresh it is the longer it will last, and the better it is for all the purposes for which it is used."

For Ferns, Camellias, and Orange trees it has been found valuable; it is best and neatest of all mulchings for flower beds in summer, and it is useful for placing over the roots of tender plants in winter, also for surfacing the beds of Pinks, Pansies, and bulbs; in fact, its uses are manifold, and a supply ought to be at the command of every gardener.—A NURSERYMAN.

[We have received samples of the cocoa-nut fibre refuse from those who advertise it in our columns, and in each case the substance is of excellent quality. We have used it for various purposes with the best results.—EDS.]

THE STAPLEFORD ROSES.

As the merits of these Roses seem to be up for discussion, it would be interesting to many if one or two of our amateur Rosc-growing friends would favour us with their experience.

One of our leading nurserymen (Mr. B. Cant), whose knowledge of what a Rose is and should be I think none will dispute, says in his catalogue, page 13—"Bennett's new hybrid Tea Roses have with me turned out perfectly worthless. It will be as well to give them a trial another year before throwing all of them away, which I anticipate will be their ultimate fate."

At the dinner upon the occasion of the Rose Show at the Crystal Palace we had as guests two eminent nurserymen and Rose-growers from the United States. They were very decided in their opinion as to the unsuitability of these Roses for outdoor culture, but spoke well of them for forcing.

If the constitution of Mr. Bennett's Roses is such that they will not open in our moist climate, and are only suitable for pot

culture, our best thanks are due to our worthy friend "D., Deal," for his seasonable remarks, which will have prevented many from ordering, thereby saving much disappointment next season.—M., Chester.

LIFTING UNRIPE POTATOES.

To the accusation of "A. K. B." on page 351, that he has been misled by any statement of mine, I emphatically plead not guilty. Never has any article been written by me "advising the lifting of all Potatoes when still in a growing state," but for many years I have repeatedly urged upon your readers to lift the Potatoes *as soon as growth ceases*, and before the disease has touched them. Not only have I so taught but so acted, not with invariable success, for, as has so frequently been explained, nothing can save Potatoes from disease in a wet summer; but given a few fine days at that critical time when growth has ceased and the ripening process begun, and the tubers are lifted, housed, and invariably saved. But mark this, they are never put in the store sheds and left for long; on the contrary, they are examined frequently for about six weeks afterwards, and the discovery of a single diseased tuber is the signal for an immediate and thorough overhauling of the whole of them. For the closest observer may overlook traces of incipient disease at the time of lifting; a single shower while we are asleep may have brought it, and then it is only by the exercise of great watchfulness and care that the crop can be saved.

This year, as was stated, the entire crop was lifted and placed in the store sheds early in August. Since then the whole of the tubers, nearly 200 bushels, have been handled and closely examined five times. They are now perfectly dry and sound, well repaying the pains and care bestowed upon them after the lifting. Had "A. K. B." so acted, he would have had no "tale of horror" to tell. Again I say to all, Lift early, store thinly, keep your eyes open and your wits about, and do not hastily condemn a well-tried plan simply because you do not understand it.—EDWARD LUCKHURST.

THE failure of "A. K. B." detailed on page 351 has, I am convinced, arisen from some error in management, and is not the fault of the system that has been practised successfully by Mr. Luckhurst and other cultivators for many years. I am not aware that anyone has advocated the lifting of "all" Potatoes when still in a "growing state." What has been advised and adopted with uniformly satisfactory results, is the lifting of the crop immediately the tubers have attained their full size, not waiting for the haulm to decay. For more than twenty years I have taken up my crops of early Potatoes as soon as the tubers attained their full size, whether the haulm was green or not, and not in one instance has anything like such a disastrous result followed as that recorded by your correspondent. There is a difference between the haulm being "green" and the crop "still growing." There is a cessation of growth where the tubers have attained their full size; and if, as is nearly always the case with the early varieties, this occurs before the disease sets in, the taking-up of the crop, or the pulling-up of the haulm, leaves the produce sound. If the fungus has attacked the foliage before the removal of the haulm or the digging of the crop, then the early digging or haulm-removal goes for nothing, and the lifted produce will decay. I have never been able in this cold northern district to save the late crops, such as Paterson's Victoria and York Regents, by the practice in question, simply because the tubers have not attained their full size before the disease has set in; but in the district in which Mr. Luckhurst labours the crops are earlier, and he succeeds in saving late as well as early varieties. As proof of the safety of the practice advocated by Mr. Luckhurst when rightly carried out, I am intimately acquainted with a cultivator who has adopted it for forty years without failure, and his stock of Early Ashleaf so long preserved is as productive as ever.—A NORTHERN GARDENER.

INJURY TO WELLINGTONIA GIGANTEA.—Mr. Geo. Parkin writes as follows in the "Journal of Forestry":—"This magnificent tree seems to have fallen in for a full share of the injury which has been inflicted this summer upon almost all kinds of trees, whether deciduous, evergreen, or Conifers, by the different insect tribes. There are a few fine specimens of the Wellingtonia gigantea on the Wortley estate, the seat of the Earl of Wharcliffe, varying in height from 5 feet to 30 feet, the lesser portion of which are still in the nursery grounds. About the beginning of last month my attention was attracted by the appearance of the tips of the branches, which, as well as the leading shoots, were drooping and turning brown. On carefully examining the trees I found them infested with a kind of spider, rather transparent,

and which, in my opinion, is the cause of the disease, each family being carefully protected from the wet and cold by a well woven covering of insect wings and bodies, small leaves, &c., about the size of a lady's thimble. These coverings varied in number from two to six on each tree; some of them enclosed a greenish-looking egg, in the centre at the top, the old spider sitting underneath it, no doubt in the act of incubation. Some of the habitations or coverings are attached to the stems, others hanging underneath the branches, which were each occupied by a family of young ones, varying in number from six to twelve, as far as I could ascertain, about the size of a small shot corn, each tent being well protected from their stronger enemies by massive webs. My first object was to cut off the branches most affected, and destroy as much as possible the holds of the invaders. I have since applied three or four solutions of paraffin and water, but with little effect. I am now trying a similar solution of soft soap, and sprinkling the ground with lime, which I hope may have the desired effect. *Pinus nobilis*, *Nordmanniana*, and *austriaca* have all slightly suffered from the same cause. The pest, I fear, is general, as I have seen it in the neighbouring woods and nurseries."

PLANTING APPLE AND PEAR TREES.

AS the season will soon be at hand for planting fruit trees I think a few remarks will not be inopportune to amateur planters. To commence with: Most people prefer size, quality, and quantity of fruits, and to obtain such you must have good trees, to be afterwards well attended to as regards dressing and pruning.

I think it is a mistake to plant Apples on the Crab stock in a kitchen garden, as they grow too freely and require too much pruning. For orchard planting Apples on the Crab are preferable, as they grow freely and only require the branches to be thinned out, cutting out those that are inclined to cross others. For kitchen-garden planting Apples on the Paradise stock are the best either for pyramids or espaliers. They come into bearing much sooner than those on the Crab, besides bearing much finer fruit. The same may be said of the Pear, those on the Quince being much finer and come into bearing quicker than those on the Pear or free stock. Trees that have the soil dug amongst them produce better fruit than those with the soil left undisturbed. After planting, which should be just as the leaves are falling, mulch with long litter. The first year after planting they will require very little pruning; the following season treat as established trees. The lateral growths should be pruned-in about the last week in August, which will expose the fruit to the sun and air, besides ripening the buds for the following season. At the winter pruning the shoots may be cut in close to the fruit buds. If large fruits are required they must be thinned.

The best Apples to grow for certainty of crop are, for culinary purposes, Ecklinville Seedling, Lord Suffield, Stirling Castle, Alfriston, Lord Derby, Emperor Alexander, Mère de Ménage, Waltham Abbey Seedling, Warner's King, Cellini, Dumelow's Seedling, Gloria Mundi, and Loddington Seedling. The above almost always produce a crop. For dessert the following are good—Ribston Pippin, Ashmead's Kernel, Adams' Pearmain, Old Nonpareil, Braddick's Nonpareil, King of the Pippins, Golden Reinette, Worcester Pearmain, Cornish Gilliflower, Court Pendu Plat, Melon Apple, Cox's Orange Pippin, and Royal Russet. The above are a good selection, and if on the Paradise stock will take up very little room and commence bearing the second year after planting. Pears succeed best planted against walls, but good fruit may be procured from pyramids grafted on the Quince. They require about the same treatment as Apples. The best varieties for succession are Doyenné d'Été, Beurré d'Amanlis, Flemish Beauty, Beurré Hardy, Beurré Superfin, Marie Louise, Beurré Diel, Doyenné du Comice, Gansel's Bergamot, Durondeau, Josephine de Malines, Thompson's, Glou Morceau, Winter Nelis, and Knight's Monarch.—FRUIT GROWER.

VALORADIA PLUMBAGINOIDES.

THIS charming little plant is better known under the name of *Plumbago Larpentæ*, but the above is accepted as the correct title by the best authorities, as there is some trifling difference between the genera *Plumbago* and *Valoradia*, though to a casual observer they appear very similar. Its chief recommendations are the brilliant blue colour of the flowers and the late period at which they are produced, the plant in the south of England often being very attractive until near the end of the present month. Unfortunately, however, in the northern parts of the kingdom the frost often destroys it, especially in exposed positions; but in such localities it should be grown in pots, succeeding well in a cold frame or cool house. Whether planted out or grown in pots a rich loamy soil is required to obtain it in the best condition.

Valoradia plumbaginoides has been in this country upwards of thirty years, and the following remarks from the pen of an able writer, which appeared in the first volume of the *Cottage Gardener* a short time after the plant was introduced—namely, in 1848, may be interesting. Under the heading "New Plants" he wrote thus:—"The charms of novelty are nowhere more irresistible than in the garden, and this often leads to some blunders. You hear or read of such-and-such fine plants 'coming out,' as the phrase goes, and your very fingers itch to possess them; but after laying out a handsome sum to procure them you soon find that they are no better than they should be. I shall pledge my word, however, that no one who will buy the plant that I shall name to-day will ever feel a disappointment respecting it. It is from the island of Chusan, on the coast of China, and is called *Plumbago Larpentæ*. *Plumbago* means Leadwort. The second is a complimentary name to Lady Larpent, who was so lucky as to



Fig. 68.—*Valoradia plumbaginoides*.

raise this plant first from seed sent to her ladyship by a British officer. This new Leadwort, then, is a charming, low, bushy, blue-flowering pot plant that will flower as easily as a *Fuchsia* from June till the frost comes, and in less than two years will be in every cottage garden in the kingdom. Although it was sold last August as high as 45s. each plant it may be had now for 3s. 6d., and before the end of next May I should not wonder to see them advertised at 9s. the long dozen, and all this because it comes from cuttings as easily as the new *Verbenas*."

The prediction concerning the price has been verified, for good roots can be obtained for 9d. each, and the stock is readily increased by cuttings. The flowers are slightly fugacious, but they are produced very abundantly in favourable positions, the brilliant blue colour gradually becoming a deep violet as the flowers grow older. The annexed engraving fairly represents the characters of foliage and flowers, but the plant is slightly straggling in its growth, except when very luxuriant.—L. C.

THE GRAPE TOMATO.—On one of the side shelves in the temperate house at Kew may now be seen some fine examples of the Grape Tomato. The plants are nearly 2 feet high and about 1½ foot through, trained round three or four stakes. There are several bunches of fruit on each plant, the individual berries

being about the size of a sparrow's egg and bright red in colour. Employed as they are at Kew, dotted between the other foliage plants, it is really surprising what a cheerful appearance they have. That was the first time I had seen them grown in pots, and under more liberal treatment it would make a plant worthy a place in a conservatory. Intermixed with foliage and flowering plants it would have a very pretty effect.—VISITOR.

GLADIOLUS DISEASE.

"R. P. B.," on page 323, has struck what I hope is but a keynote to an interesting overture. I with him await with interest the contribution of "D., Deal," with regard to this year's experience. I have now successfully cultivated these, the grandest of all our autumn flowers, for several years. This I may say, after the testimony expressed in the presence of our friend "D., Deal," at Helensburgh, and the fact that an extra prize was awarded me last month at the Show of the Royal Caledonian Horticultural Society in Edinburgh. What is the sequel? I have drawn out of the ground and burnt the corms that produced the spikes so much admired in the Waverley market. Among these was De Mirbel which never failed me before. This I flowered literally from bottom to top, and those who grow the variety will know what nineteen open flowers of De Mirbel mean. Then followed, I mean to the waste heap and cremation, Adolphe Brongniart, Andromeda, Brennus, Carnation, Daubenton, Lady Bridport, Le Phare, Pictus, Psyche, and others. Now comes the difficulty. I once wrote to our Journal on the same subject, and specified Madame Desportes, Meyerbeer, and Ondine as the varieties that failed regularly with me and my neighbour amateurs. Well, one out of three corms of Madame Desportes has gone, and not one of the others I have mentioned as bad keepers, and which I made up my mind to purchase every spring.—A NORTHERN AMATEUR.

PLANTING POTATOES IN THE AUTUMN.

I HAVE been preparing some ground to-day, more by way of experiment than otherwise, for early Potatoes, and wish to draw the attention of the readers of the Journal to a subject of importance, with the hope that those who habitually plant at this time of the year may be induced to give us their experience. A few words on each of the following heads would be useful—the soil, sets, manure, and preservation against frost. The main point to be kept in view is the latter, and this must be borne in mind when considering all the rest. The soil cannot be too friable from this standpoint, as frost cannot enter so easily nor moisture be retained as if not possessing that characteristic; and the non-retention of moisture means that the sets are less liable to decay and the soil less liable to be congealed. I am using a prepared space by a warm south wall. The sets have been thoroughly ripened and greened; and though I have had the large tubers cut and cauterised with slaked lime, I prefer for this planting to use whole small tubers, as being healthier and less liable to decay in a wet season. At present I am trying Ashleaf Kidney, Early Rose, and Bresee's Peerless, still keeping in view their preservation in early spring. I am using old botbed manure exposed some time and now rather dry. In any soil with this no moisture can lodge. I do not agree with those who recommend no manure for autumn Potatoes. As a precautionary measure it is generally recommended to put the sets 2 inches deeper than usual.—W. J. M., *Clonmel*.

WILL you kindly answer the following questions through the *Journal of Horticulture*? My master went out last week and saw the best (as he said) horticulturist in England, who told him to plant Potatoes in October, as they are much better than those planted in spring. The gentleman told him the system was quite a new one. I ventured to say it was not new, as I feel sure I read of it in the *Journal* a long time back. Can you tell me the numbers it is in, how old the practice is, and where it originated? Our Potatoes are to be planted at once.—WIMBLEDON.

[This "new" mode of planting Potatoes in the autumn is in reality a very old one. So far as we know the first person who publicly advocated autumn planting was Mr. James Tindall, gardener to J. Errington, Esq., of Beaufort House, Durham. He has stated that he adopted the practice in 1820, and published his recommendation in the "Transactions of the Horticultural Society of Durham." In the very first number of the *Cottage Gardener* the system is referred to approvingly, and in the first half-yearly volume more is published relative to the practice than probably in any other work. In the years 1844, 1845, and 1846 the practice was adopted by many cultivators, and often very suc-

cessfully. For instance, Mr. Barnes of Bickton, who was known as one of the most practical gardeners of the day, wrote as follows in 1846:—"We have had astonishing crops of Potatoes this season from the autumn-planted, and what we have left in store keep very well in charred matters. Our seed tubers, too, at present are sound and good, having no appearance of disease; but then they have been well dressed with soot and charred sawdust, with a small portion of slacked lime added, and well greened. I am quite satisfied with them at present. Though our autumn-planted crops are so abundant, we have none worth digging or taking up from those planted in spring."

Yet notwithstanding much evidence that was published in favour of the practice the system never became general, possibly because it was not always correctly carried out, that it did not succeed equally well under all seasons, or it was not well adapted for all soils and districts. It is certain that the plan never became common in the large Potato-growing districts of Lincolnshire and Yorkshire, nor was it practised or advocated by such experienced cultivators as Mr. Fenn or the late Mr. R. Fish; nor is it adopted now by such gardeners as Mr. Abbey, Mr. Luckhurst, and others; indeed, the great majority of gardeners find it advantageous to store and prepare the seed intelligently and plant in spring. This also is, we think, the practice of the Potato fanciers whose object is to grow the best produce for exhibition. Potatoes that have been planted in autumn in some strong soils have not come up regularly on account of the soil settling so close and firmly round the tubers by the winter's rains, and then being "baked" by the sun in early spring. The land also, under field culture at any rate, could not be so well cleaned when planted in autumn, and weeds often gained the ascendancy. In your district the soil is light, and autumn planting will probably succeed. Try it and let us know the result. The tubers should be covered 6 inches deep, and they will be safe from frost; in colder localities they should be planted a little deeper. We will readily publish the experience of those who have proved the advantages or disadvantages of this very old system of culture.]

EVERLASTING PEAS.

THE Everlasting Peas seem to me neglected. They may be made to do good service in many aspects. Perhaps their best position is a back row in large borders and open spaces in the shrubbery, and covering old stumps. They are fine on lawns, and for trelliswork and rockery. We do sometimes see *Lathyrus latifolius* and *L. latifolius albus*, *L. splendens*, *L. tuberosus*, *L. grandiflorus*, *L. mutabilis*, and *L. maritimus*; but others, such as *Lathyrus rotundifolius*, one of the most beautiful of the race, ought to be in every herbaceous border, but is seldom seen. It grows to the height of 6 feet in good loam, and is covered with a profusion of beautiful reddish-crimson flowers for a long time in the summer. *Lathyrus magellanicus* is very beautiful. I do not mean what many know as Lord Anson's blue Pea. There appears to be some confusion between this and *L. magellanicus*, which is from Cape Horn introduced many years ago, a bluish-purple Everlasting Pea. I am afraid this will be very bad to meet with; I have not seen it for a long time. Can any of the readers of our Journal tell us where it can be obtained? Such a plant ought not to remain neglected. There are others that might be named, but the above will suffice; they are useful where cut flowers are in demand. Good sandy loam will meet their requirements. They cannot endure stagnant moisture, though bearing drought well. They may be increased by division, but are more readily increased by seed sown either in pots or borders in the spring.—LATHYRUS.

FUNGI A CAUSE OF DISEASE.

WE appear to make but little progress in our discussion of this subject, for Mr. Luckhurst seems solely occupied with the object of endeavouring to support the opinions he has so often expressed in the pages of the *Journal*; and I cannot help thinking that if he were not quite so positive in his assertions, and manifested more desire to discover the correct view of the matter, it would give more chance of our arriving at an understanding. I accept the explanation that his remarks only apply to the three instances we have discussed, but I am not the only individual who placed a wider signification upon his first statement; and if it was originally intended to apply only to the Potato disease, Peach blister, and the shanking of Grapes, the expression "every instance" was misleading. He also could not have read my last communication very carefully, or he would have seen that I did not imply in any way that he was alone in his opinion, for my remarks applied to the shanking of Grapes, the fungoid cause of which has been advanced by Mr. Harrison Weir and only by him as far as I know

and therefore it could not be taken as a general opinion. As for my not having given any reason for the fungus causing discoloration of the foliage, Mr. Luckhurst appears to be troubled with a peculiarly short memory. He should read my observations on page 280 again; and for their worthlessness, let me tell him that he is totally incapable of disproving that the mycelium does act in a poisonous manner, producing discoloration of the tissues. His long and close observation about "legitimate growth" and "legitimate functions" having ceased before the disease attacks the plants will not establish his case, for I and others have repeatedly observed instances to the contrary. So the question requires no further answer than that his experience is not in accordance with mine.

After twice requesting an explanation of the peculiar circumstance that the *Peronospora infestans* suddenly appeared in this country in 1845 accompanied by the Potato disease, Mr. Luckhurst, who was evidently not prepared to answer it directly, replies in a truly Hibernian manner by asking another question, "Will 'S.' kindly give his authority for the statement that *Peronospora infestans* was unknown in this country before 1845?" My authority is the Rev. M. J. Berkeley, a scientific gentleman of high repute, who was among the first who investigated the cause of the Potato disease, and who has probably spent more years in the study of the lower orders of the vegetable kingdom than Mr. Luckhurst has weeks. He has stated it in several places, but one perhaps that will be conveniently consulted by your correspondent is the "Treasury of Botany," page 923, 1876.

Turning to the Peach blister I observe a strange inconsistency in Mr. Luckhurst's statements. On page 362 he said, "Plant two Peach trees of the same variety side by side, screen one from the wind, but let it be fully open to the air, and there will be no blister," and he further says that the unprotected tree "will be blistered precisely in proportion to the degree of exposure;" but on page 346 he is afraid I am not a close observer, or I should be aware "how worthless are all ordinary forms of shelter," of which I am certainly not aware, for it is directly contrary to everyday experience, and in the instance which I cited the protection from winds was as efficient as could possibly be afforded outside, yet the blister was as bad as it could be. Having first positively asserted that wherever the wind can affect the trees it produces blister, he infers that wherever blister is seen the wind has produced it—a very original mode of argument, but by no means satisfactory, as if he could prove the first assertion the other would not necessarily be correct. As to the plants being free from blister in the houses, I may say that though an instance to the contrary has not come under my own observation, yet an intelligent gardener friend of mine who has had long and varied experience assures me that he has several times seen it occur in houses. I entertain no doubt respecting the actual cause of the blister, but the conditions particularly favouring its production are not so clear. I believe that a thorough ripening of the wood is one of the best means of preventing it, and if that be the case immaturity of the growth or looseness of the tissue would seem to be one of its requirements. Mr. Luckhurst has not yet given us an example of anything similar to blistering being produced in other trees or plants by the cold winds alone.

The following is a brief summary of my reasons for believing that fungi cause the Potato disease and Peach blister. With regard to the first, the disease is invariably accompanied by the fungus *Peronospora infestans*, its mycelium or spores being found in every portion of the Potato haulm or tuber that presents the ordinary appearances of the disease. It is known beyond all dispute that the fungus is capable of producing the rapid decay which takes place in the haulm. It only appears under certain conditions of temperature and moisture. And lastly, both the disease and the fungus were unknown in this country before 1845, though the Potato had been in cultivation for above a hundred years before, and since we have never been free from it. I consider the Peach blister to be caused by the fungus *Ascomyces deformans*, because it is perfectly adequate to the effects. It always accompanies the blister, and is not found upon Peach trees at any other time, and I cannot conceive how the blistering of the foliage could be produced by any but internal injury. The condition suitable for this fungus is, however, as I have already stated, not quite clear, but I think it will be found that much depends upon the ripeness or immaturity of the wood.—S.

DURING the last few weeks the issues of the *Journal of Horticulture* have contained communications from various correspondents, who have ably championed, or assailed, as the case might be, the claims of fungi to the honour (?) of producing disease in plants. On the one side their ideas have been expressed by a full and lucid explanation of the conditions under which the texture

of the Potato foliage, and also that of the Peach becomes injured, or it may be said diseased, from climatic causes, such as cold or wet; and it is asserted that this ruptured state of the tissues of the leaf is the cause of Potato disease, Peach blister, &c. While on the other hand equally good reason is shown, supported by strong facts, that fungi cause disease in those cases.

Microscopic research has been said to prove that when subjected to excessive wet the cells of the Potato foliage become ruptured. The microscope has also shown the mycelium of the *Peronospora infestans* present as soon as disease appears on the Potato leaf.

Now it may be presumptuous in me to venture upon giving my ideas when the subject has been ably handled by writers of acknowledged talent in those matters, but I cannot help venturing the opinion that, if we accept as facts that the foliage of the Potato and Peach become vulnerable from one cause and is then attacked by fungus, we have two concurrent circumstances as causes producing an effect which we call Potato disease. From this I would deduce that it is illogical to call one the effect of the other.—R. CROSSLING, *Castle Gardens, St. Fagans*.

OLD CUCUMBER PLANTS.

THE remarks on the above subject by "A KITCHEN GARDENER," on page 325, were read with great interest by many gardeners, and in continuation I wish to give a few of my observations. If you can keep the old stems in good condition they will produce fruit for a whole year; but whether it is profitable to do so is another question. The grand secret of successful Cucumber-growing is cleanliness, for unless the foliage be clean no very satisfactory results can be expected. This year plants put-in in January are now in full bearing, and I have cut since March 1700 fine Cucumbers. I have examined the plants to-day and find them likely to last as long as I wish to keep them—namely, until Christmas, when my early plants will be in a bearing state. To keep Cucumbers in good condition they must never be neglected in the supply of water at the roots, and also they must be thoroughly syringed at least once a day with tepid water. I place the water cans on the pipes, and find the water sufficiently warm either for supplying to the roots in the morning or syringing in the afternoon. The house is 80 feet long, a lean-to, though tanks take up 4 feet at each end of the bed. Frequent top-dressing is attended to, and I prefer giving a little at a time to a great depth at once. I plant 3 feet apart and encourage the production of foliage and wood from the base of the plant, as it helps to thicken the stems. I have only lost one plant, and this damped off at the collar. To maintain a regular supply of Cucumbers the treatment should be regular as regards temperature, ventilation, tying, and stopping. I examine my plants once, sometimes twice or three times a week; by so doing I have a constant supply of young wood to take the place of the old leaves. I have grown several varieties here, but none have equalled the Telegraph, especially in the early part of the year. I noticed this spring that I cut from plants of Telegraph three times the quantity of good fruits that I obtained from the same number of plants of any other variety. It is advantageous to afford a little shade, at least when the sun is very bright. I do it in this way: I obtain a few lumps of lime and slake it in a pail and employ it hot, placing it on the glass very lightly with a brush, and it lasts all through the summer. I have kept the fires in all through the summer. I find that it is best to do so, especially in changeable weather, regulating the heat by the valves. I know that there are various opinions as to bottom heat, but from experience I think there is little danger of having too much, provided water is supplied in proportion.

In concluding I will sum up the requirements of Cucumbers in a few words. To grow them well necessitates hard work, constant attention, judicious watering, regular syringing, liberal top-dressings, and fire heat according to the weather, but I make no attempt to keep the temperature at a fixed degree, as common sense tells me to do this must be wrong. In addition to the regular watering and syringing in hot weather the plants are greatly benefited by damping the paths and beds during the morning, or say about noon. Keep your plants pinched and tied regularly, and cut the fruit as soon as ready. Always close the house early before the sun loses its power, as by so doing you save much fire heat and benefit the plants.—STEPHEN CASTLE, *The Vineyard, West Lynn, Norfolk*.

JAPANESE ANEMONES.—I was very pleased to see these so prominently advertised in your columns last week, as they are plants of such sterling merit that everybody ought to grow them. Owing to the number of hardy and other plants now advertised and spoken of in the papers, it can be no small matter for anyone to select those which are really good and useful, as it is well known

that many of the so-called hardy flowers possess no decorative value; but if nurserymen, who know the value of plants and flowers better than most people, would only advertise those that are really good, they would do good service to all lovers of useful flowers. We have both the white and pink varieties of the above growing out of doors and under glass here, and for all purposes and all positions of a floral decorative character there are few flowers equal to them.—J. MUIR.

THE SNOWBERRY.

THIS shrub (*Symphoricarpos racemosus*) when in beautiful berry at this season occasionally proves very useful. In a few wreaths of choice flowers which have passed through my hands of late some of the clusters of this were greatly admired. I send you a few sprays, though this season I have gathered many much finer. Our plants for the last few years have been laden with white berries; indeed, I do not recollect ever seeing fruit so abundant. They are growing in the fowl yard, and whether with the hens being so much under them and the manure being washed down to the roots is the cause or not of the fertility I cannot say.—R. M.

[Such very fine pure white clusters of fruit as you have sent are valuable for many decorative purposes.—EDS.]

THE POTATO DISEASE.

THE theory which "INTERLOPER" has advanced about the disease being "caused by a rupture of some of the organs by a glut of rain during some period of the plant's growth" is ingenious; but to make it good it would require to be backed up by the necessary evidence, and it would also be necessary for him to be able to explain all the facts connected with the disease, and not to confine the proofs to a few of them. Let us examine his proofs a little—1, "The cells being ruptured after heavy rains." This may be so, but is the rain the cause of it? 2, "Gather from reliable sources the results of growing Potatoes under glass, and where they are free from excessive moisture, and the evidence will show the absence of disease." If Potatoes are kept dry under glass they are often free from disease, particularly in spring, but there are exceptions. Mr. Bréhaut in Jersey found his Potatoes badly diseased one year when grown in his greenhouse entirely sheltered from rain. The gardener to Lady Rolle many years ago experienced the same thing with Potatoes grown in frames. How does "INTERLOPER" propose to account for these exceptions? This heading may be included under No. 2. Then, again, supposing heavy rains after muggy weather are the predisposing causes of disease, how does "INTERLOPER" propose to account for the circumstance that the Potato was grown for two centuries before 1845 without any of those evil consequences arising from gluts of rain of which he speaks? There are many other little difficulties attending the excessive rainfall theory, but perhaps the above will suffice for the present.—AMATEUR, *Cirencester*.

BULBS IN BEDS.

LAST year I had an American paper sent to me which gave instructions for planting a bed with bulbs so that it would be attractive over a considerable period. As the plan appeared worthy of trial I tried it, and as it answered my expectations I send it to you, as possibly if adopted it may give equal satisfaction to others.

"Make a round bed of any size, and plant an inner circular row of Crocus, and next outside a row of Hyacinths; then a second row of Crocus, and next one of Tulips. Continue this until the bed is filled—making every second row Crocus, and alternating Hyacinths and Tulips between them. The row on the extreme edge must be Crocus, and the space inside of the first row should be filled with Tulips or Hyacinths. The effect of a bed thus prepared is extremely pretty for a long time, and, thus arranged, it may remain undisturbed two or three years.

"Snow is no sooner gone than the bed is bright with the cheery little Crocus, which apparently covers the whole surface. These will hardly have passed away when we have a bed of Hyacinths in all their delicate lovely tints. The Tulips then form a climax of gorgeousness. The foliage of the Crocus, which is extremely delicate and pretty, is in perfection during the flowering of the Hyacinths and Tulips, and covers the bed with a lovely green carpet, taking away the usual bare look of bulb beds when out of their time of bloom. Still another succession might be had by scattering the bulbs of the Spanish Iris through the bed. They are perfectly hardy, with slender foliage, and furnish exquisitely beautiful flowers in every shade of blue, purple, yellow and white,

and even chocolate. These, following the Tulips, need only seeing to be appreciated.

"After the bulbs have finished blossoming the foliage should be allowed to ripen, to perfect the bulbs for another year; but the surface may be immediately picked over with a fork between the rows and between the bulbs, and *Portulaca* or *Petunia* seed may be scattered over the bed. These will be growing freely by the time the bulbs are gone. After the first year these latter will sow themselves and be ready to bloom early. If foliage beds are preferred, small plants of *Coleus*, *Cineraria*, and *Centaurea* may easily be planted between the bulbs, making the bed very ornamental for the remainder of the season."

I did not include the Irises, but I have no doubt whatever that they would have succeeded equally well, and I shall try them this year. The Tulips I employed were *Rex Rubrorum* and *La Candeur*, and their effect was very beautiful. The bulbs should be planted as soon as possible.—A STATION MASTER.

HOLIDAY NOTES.

WOOLTON HALL.

FROM Garston to Woolton is a distance of 2½ miles, and the district is one of the most pleasant in the neighbourhood of Liverpool. It is not necessary for me to give a description of the above-named place, as that task fell to the lot of an abler writer than myself, who last year gave your readers a concise and instructive account of nearly all the places of note about Liverpool.

At Woolton Hall there is so much that is good that it is difficult to decide what to place first, but what first struck me as being worthy of note were the *Chrysanthemums*. Hundreds are grown for specimen blooms, and scores of bushy plants for conservatory decoration. Mr. Faulkner grows three or four dozen each of white and yellow *Cedo Nulli*, and when arranged in lines in the glass corridor they have a good effect. The plants grown on single stems are of a character rarely to be met with as regards strength, and the abundant foliage is of the richest green imaginable, all the plants being of the most approved exhibition varieties. In the plant stove I noticed *Nymphaea caerulea* flowering in a tub about 40 inches in diameter and 14 or 16 inches deep. It is to be regretted that these beautiful plants are not more generally cultivated. In the greenhouse was a good plant of *Trachelium caeruleum* bearing its *Statice*-like flowers in great profusion. On the back wall was a large *Abutilon Boule de Neige* planted in the border, giving a useful supply of flowers for cutting. This is the way *Abutilons* should be grown where there is space for them. Perhaps that which gave me the greatest pleasure at Woolton Hall was a fine group of the blue and white *Campanula pyramidalis* 8 to 10 feet high, and arranged alternately in an octagon-shaped bed in the conservatory; the purity of the white combined with the rich blue flowers and the noble yet graceful proportions of the plants had a most charming effect. This *Campanula* may be grown from seed and flowered within eighteen months from the time of sowing. The seed should be sown at the same time and treated like early *Cinerarias*, growing the plants hardy and rapidly, which will readily be effected by giving light rich soil with exposure to light and air. They should be finally potted by the end of August, and if thoroughly ripened in the autumn they will produce their lovely flowers in due course the following summer.

The condition of the Peach and Nectarine trees in the houses reflect the greatest credit on Mr. Faulkner, who has been growing them on the extension system, and thus is rapidly covering the large trellises allotted to them, and producing good crops of fruit of the finest quality. The varieties chiefly grown here are *Bellegarde* and *Violette Hâtive* Peaches, and *Pine Apple* and *Pitaston Orange* Nectarines, four varieties that are not easily excelled for general culture. The young Vines in the vineries are in good condition, and promise at no distant date to produce fruit that will take prominent positions at some of the provincial shows. I take this opportunity of thanking Mr. Faulkner for the courtesy extended to me during my visit to Woolton Hall.

OTTERSPOOL.

This beautiful place loses none of its prestige under the superintendence of Mr. Lindsay, the worthy successor of Mr. Hinds. Strawberries in pots are all that could possibly be desired, with foliage of a size and quality rarely to be met with, and consequently having crowns of excellent promise. Strawberry forcing being a special feature at Otterspool, I naturally looked for something good in that line, and I admit that I was fully satisfied with what I saw. In cold frames were some very good examples of *Mignonette* grown in pots, and trained as pyramids 30 inches high. When specimens of this deliciously fragrant plant are wanted they should be grown on rapidly to the desired size

without receiving a check of any kind, the flowers to be constantly picked off until the size required is obtained.

Primulas are well grown here, as are also specimen plants of Chrysanthemums. In one of the Orchid houses I noticed a good variety of *Sobralia macrantha* in flower. Roses are planted in every available space in the cooler houses, and produce a continuous supply of flowers for cutting, chiefly *Maréchal Niel* and *Gloire de Dijon*.

There were some strong well-ripened Vines in pots in a span-roofed pit; and in an adjoining division was a plant of Black Hamburgh, bearing large bunches of first-class Grapes. The most pleasing feature, to my mind, out of doors was the rosery, where the Rose beds were carpeted with Stocks and *Mignonette*, Asters and *Phlox Drummondii*. The general keeping of these extensive gardens is very creditable to Mr. Lindsay.—J. U. S.

CHAPTERS ON INSECTS FOR GARDENERS.—No. 13. NEW SERIES.

ALTHOUGH it is an exceedingly scarce British insect, a few words of notice may be bestowed upon a remarkable beetle

allied to the Sunshiners referred to in our last article, especially as a naturalist (the Rev. J. G. Wood), has expressed his opinion that "an entomologist would be doing a patriotic act by bringing over a number of them from the Continent, and turning them out to get their living in England." For one thing he believes these beetles, were they established amongst us, would help to diminish the numbers of some of the hairy caterpillars that are known to be destructive to vegetation. As a rule birds avoid caterpillars that are hairy or spiny, and the *Ichneumon* flies also escape more frequently than other caterpillars owing to their protective coat. This beetle bears the name of *Calosoma sycophanta*, and it is about an inch in length, with a head and thorax of very deep violet, and wing-cases of golden green. Hence when a swarm

of the species is on the wing in one of those Fir woods to which they have a special liking, the display is very beautiful. Indeed it is asserted that were it not for the services of *C. sycophanta* and its larva many of the Pine and Fir woods of the Continent would soon be desolate owing to the rapid multiplication of several species of social caterpillars, particularly those of the Processionary Moth and the Gipsy. It is said that in some seasons the caterpillars appear in such hosts upon the Pines that a person walking through the woods hears on every side a creaking sound which is the result of the thousands of jaws busily at work. Upon these the larva of *C. sycophanta* makes attacks—an unpleasing creature in its aspect, black and scaly, but armed with mandibles which are most effective in caterpillar slaughter. It will gorge itself, not only with larvæ, however, but with pupæ also, and it not unusually seeks out and kills, besides these Lepidopterous larvæ, that of the Pine sawfly (*Lophyrus Pini*), an insect which does considerable harm, and which is not uncommon in Britain. But it is certainly curious that this useful beetle, so abundant in various parts of the Continent, should continue very rare here.

We proceed to another group of water beetles called Philhy-

drida (or water-lovers), resembling the water beetles previously described, but having short and clubbed antennæ. Some of these are carnivorous, though most of them feed upon vegetable substances growing or in a state of decay. Our largest British beetle next to the Stag beetle (*Lucanus Cervus*), a species of very different habit, is the black water beetle named *Hydrons piceus*, an insect which may be introduced into the aquarium, for it merely nibbles the leaves of the plants, and will not wage war upon its companions, as does the *Dytiscus* or water tiger. The larva is predaceous, however, destroying water snails and various insects, and after a life of much longer duration than that of the beetle into which it develops, it forms a cocoon in the earth beside the stream that has been its home. There are several genera of much smaller beetles, concerning which we need only say that the majority have legs adapted for crawling as well as swimming, and their habits lead them to quit the water frequently, gliding amongst the moss and grass near ditches or in marshy places.

The beetles of the next family, the *Necrophaga*, come in closer relation to the garden and other haunts of man. "Lovers of the dead," or "lovers of filth," as another Greek name given to them implies, they are yet seldom unclean or offensive in themselves,

and in the great system of Nature they perform a duty that is by no means insignificant. Death and decay must occur in the animal and vegetable worlds, and many beetles have it assigned them as their life business to remove or decompose what might otherwise infect the air. A few of the *Necrophaga* have exceptional habits, but the bulk of them act as scavengers, the burying beetles being a leading type. These sturdy beetles of the genus *Necrophorus* are usually banded with yellowish red and black, as in that common species the Sexton, *N. Vespillo*. By means of a delicate sense of smell (as is supposed) burying beetles discover on the earth or on grass the dead bodies of small quadrupeds, birds, or frogs; and working generally in couples, though now and then a party of six or eight has been observed, they inter



Fig. 69.—*SILPHA QUADRIPUNCTATA*.

these in the soil. Should the object be lying on grass or stony ground the beetles will drag it, with some labour, to a spot where it can be conveniently interred. The principal part of the work very suitably is performed by the male insect, which sets about the task in a methodical way, first digging furrows round the animal, then burrowing beneath he throws up the earth so as to form a rampart about it; next he stands upon the animal and presses it down, but should it not seem to have sunk enough more earth is removed from under it, and finally it is covered with the earth, which is trodden-in by the beetles. All being now ready they descend to the carcass, upon which they feast, and in which the female deposits her eggs. The larvæ of burying-beetles are long and worm-like, the legs almost imperceptible; but on the segments are elastic horny plates, by which they push themselves along.

Beetles that are placed in the genus *Silpha* have had the English name of Sextons given to them by one author. The French name, equivalent to Shield Beetles, is more appropriate, for they have a flattened extension of the thorax that projects above the head; and although some of them hunt not dead animals, there is a great variety of habit amongst them. The *Silphæ* are smaller than the *Necrophori*, and very agile in their movements. *S. obscura* almost

everyone has passed or trod upon by the roadsides—an insect of a dingy black, about two-thirds of an inch in length, having three ridges on the wing cases. This insect and several of its brethren feed upon decaying substances, animal, or occasionally vegetable, a favourite mark of the larvæ being the stale marrow bones often thrown out upon rubbish heaps. The larvæ of the *Silphæ* resemble the beetles is being made for rapid locomotion, having long and spined legs; their bodies are, moreover, shorter and thicker than are those of the *Necrophori*, each side of the head is furnished with six eyes. *Silpha quadripunctata*, shown in figure 69, a little larger than life, is one of our useful beetles, red-brown spotted with black, and travels over the branches of Oaks and other trees devouring caterpillars. Wandering amongst the grass and low herbage the larva also preys upon such insects as it can overpower. But a less favourable account has to be given of the dark-looking *S. opaca*, the larva of which has been detected in the act of devouring the young leaves of Beet and Mangold Wurtzel. (See page 295.) Another species of *Silpha*, again, may put in a claim to be considered the gardener's friend; this is the small and smooth *S. lævigata*, which, in spite of their protective slime, grapples with good-sized snails and kills some of them. We dismiss this group of beetles with a brief mention of the "mimics," which have received their popular name from the readiness with which they "tuck in" the head and legs if alarmed, when as they lie motionless they resemble some inanimate object. Those in the genus *Hister* live upon decaying substances, and as they are often brought into gardens with manure suspicion attaches to them which they do not deserve. One small beetle of the group is an enemy to Truffles; however, it has curiously curved hind legs, and its colour is indicated by its Latin name of *Anisotoma cinnamomea*; it fortunately confines itself to this non-important vegetable.—J. R. S. C.



AT a meeting of the General Committee of the NATIONAL ROSE SOCIETY, held on the 12th inst. at the rooms of the Horticultural Club some matters of importance were decided. The Metropolitan Show will probably be held at the Crystal Palace on Saturday, July 2nd, and considerable alterations have been made in the schedule so as to give better opportunities for small growers to compete. The Provincial Show will be held at Sheffield on Thursday, July 14th, and an offer made by Manchester to incorporate an autumn show of Roses with their International Fruit and Flower Show in September next was accepted.

— AMONGST the many interesting exhibits at the International Food Exhibition held in the Agricultural Hall we noticed a FINE COLLECTION OF GRAPES which were contributed by Mr. A. May, Fruit Merchant, St. Swithin Lane, Cannon Street. They had been grown by Mr. Ward, gardener to S. N. Miller, Esq., Bishop Stortford. The size of the bunches and berries and the excellent finish indicated the careful and judicious culture they had received. The most noteworthy of all was a bunch of Syrian said to weigh 18½ lbs.; it had two immense shoulders, and was in very good condition. A bunch of White Nice weighed 11¾ lbs. in similarly good form. Two handsome bunches of Gros Guillaume weighed together 12 lbs., and three bunches of Alicante weighed 16 lbs., and for bloom and size of berries and well-formed bunches they could scarcely have been surpassed. Gros Maroc were also represented by a few bunches of moderate size, but with extremely large berries. Two Pine Apples, 7 lbs. and 7¾ lbs. each, with Pears, Apples, Bananas, Melons, Pomegranates, Brazilian Oranges, and many other fruits rendered this stand of especial interest to the horticulturist.

— IN the greenhouse at Kew THREE GOOD PLANTS FOR ROOFS OR PILLARS are now flowering most abundantly—namely, *Cestrum aurantiacum*, *Cassia Sophora*, and *Passiflora cæruleo-racemosa*. The *Cestrum* is very similar in habit, foliage and

shape of the flowers to the well-known *Habrothamnus elegans*, but the colour of the flowers is a rich orange yellow tint, very bright and distinct. The *Cassia* has bright green pinnate leaves and terminal clusters of pale yellow flowers. The *Passiflora* is well known as a beautiful floriferous hybrid between *P. racemosa* and *P. cærulea*. All succeed in a moderately rich well-drained soil.

— MR. C. SMITH describes in *The Gardener* as follows a fine crop of MELONS AT CARDIFF CASTLE:—"The plants, seven in number, were planted in a border 2 feet wide and 14 inches deep, in a compost of soil which had produced two crops of Melons before the crop I am going to describe. Mr. Pettigrew is not particular as to the quality of the soil he uses for growing Melons. His success depends more on giving the plants liberal supplies of liquid manure and light top-dressings, to induce root-action near the surface, than trusting to any special soil. Three crops were taken from the plants which I allude to—namely, eight fruit from each plant each crop, or twenty-four Melons from each plant, making a total of 168 fruit to the seven plants, which averaged 3½ lbs. each, or in all 588 lbs. Many of the fruit of the first crop were more than 5 or 6 lbs. each, but they were smaller in size towards the end of the season. They were, however, all presentable fruit, and none of them under 2 lbs. in weight, and of the very best quality. The variety which produced the enormous crop was Eastnor Castle, a green-fleshed kind, of which we have a very high opinion. Mr. Pettigrew devotes great attention to the cultivation of the Melon; and it must be gratifying to him, as well as to the many visitors who come to Cardiff Castle, to see annually such magnificent crops of Melons as are grown there."

— THE display of CHRYSANTHEMUMS IN THE INNER TEMPLE GARDENS, which annually attract so many visitors, is likely this season to be even more satisfactory than usual. The plants are in robust health, the foliage dark green, and clothing the stems well up to the flower buds, which are also exceptionally clean, stout, and promising. Mr. Newton very reasonably anticipates having a better show than he has had for several years, and judging from the general condition of the plants and the large number of buds they are bearing we have no doubt it will prove so. The plants are now under cover, and in the course of a fortnight many flowers will be fully opened.

— IN the MIDDLE TEMPLE GARDENS a glass structure has also been erected for Chrysanthemums, and Mr. Snelling the gardener in charge has over three hundred plants arranged. They are rather small and a little backward, but as the buds are showing freely there will probably be a good and satisfactory display.

— "L. R." writes, "One of the good qualities of CARPET BEDS is the long period during which they remain bright and effective. I recently observed an instance of this in one of the London parks, where the carpet designs were almost as attractive as they were a month ago, the *Alternantheras* not having been destroyed by frosts, and the colours remaining surprisingly bright." A manager of one of the parks informed us the other day that the carpet beds last rather too long: he wished they were over, as he wanted to prepare the beds for bulbs.

— A USEFUL hardy plant for flowering at this time of the year is *EUPATORIUM AGERATIOIDES*. It bears heads of white flowers very similar to those of *Eupatorium riparium*, but the leaves are much larger and ovate in form. The plant grows about 3 or 4 feet in height, and succeeds in any ordinary garden soil, affording a supply of flowers until destroyed by frost. Though it has been in this country about 240 years it is by no means so common as many other plants of much less usefulness.

— A NEW VINE PEST has made its appearance in the Rheintal, canton St. Gall. The disease is said to resemble in some of

its characteristics the Potato murrain, but it is much more virulent, the Grapes affected by it becoming rapidly putrid. Several vineyards have been completely devastated by the malady, which is believed to be of American origin.

— FROM a Japan paper we learn that at the Botanical Garden in Aichi, *ken*, an INDIAN TEA-PLANT, has been planted as an experiment. The leaves have lately been gathered and treated in the same manner as the Uji Tea, and it has been found that the product of dried Tea is greater in proportion to the quantity of leaves used than in the case of Japanese plants. Tea-growers are, in consequence, said to be devoting their attention to the new plant.—(*Nature*.)

— A CORRESPONDENT ("W. F. M."), who desires to form a LAWN TENNIS GROUND, asks what extent of lawn is necessary for carrying out his object. Perhaps some of our readers can supply the information required.

— AFTER several days of fine WEATHER that was generally very favourable to gardening operations, a change occurred on Tuesday last, when rain and snow fell in many places; yesterday (Wednesday) snow, rain, and sleet fell for a considerable time in the metropolitan district, quite putting a stop to planting and other outdoor work.

— Mr. W. ROBERTS, writing in reply to Rev. A. Fitch, states that after much research he has found the ORIGIN OF THE ASH-LEAF POTATO. "The old Ashleaf," he writes, "was raised from the seed of the Mouse Kidney at Retford, Nottinghamshire, in 1804 by a John Holberry, a shoemaker of that town."

— THERE were, says the "Prairie Farmer," 249 varieties of AMERICAN GRAPES exhibited at the recent fair of the Mississippi Valley Horticultural Society at St. Louis. This was probably the largest and finest show of Grapes ever made in the United States. We not unfrequently hear it remarked that we have too many varieties of Grapes in this country, but the Americans appear to excel us, for at our greatest fruit shows seldom more than a dozen varieties are exhibited.

— THERE has been issued the official report to the Indian Government of Dr. King for the year 1879-80, regarding the CINCHONA CULTIVATION in the GOVERNMENT PLANTATIONS in BENGAL. In 1879-80 the extended cultivation reached about 750,000 young trees, and a crop of 361,590 lbs. of dry bark was harvested. A new kind of Cinchona yielding the Carthagena bark of commerce was successfully brought into cultivation. At the close of 1879 a consignment of Calisaya bark was made to London for sale in the market. The amount of febrifuges used in Government hospitals and dispensaries in 1879 in substitution of quinine was 5,400 lbs. The average price of quinine in Calcutta in 1879 was 90 rupees per pound, and at that figure the saving effected by the native-grown substitute has been nearly £40,000. The saving in former years from the like substitution of the cheap and equally effective native for the imported and costly drug was about £80,000, so that to the end of 1879 the total saving was about £120,000, or about £15,000 more than the plantations have cost from their origin, including compound interest on outlay at 4 per cent. per annum. These results are gratifying, and in the future even larger savings are expected from the successful cultivation of the valuable Cinchona species (obtained through Kew) which yields the Carthagena or Columbian bark.—(*Pall Mall Gazette*.)

— A CORRESPONDENT of a daily contemporary writes:—"We have been spending the week rambling on foot among the MARKET GARDENS OF THE MIDLANDS. They are situated on the estates of Sir Francis Burdett and Sir John Harpur Crewe, in the neighbourhood of Melbourne, Derbyshire. Hereabouts the farmers

are not agriculturists in the strict sense, but gigantic gardeners. All the produce to be seen any day of the year at the shops of the huckster and greengrocer are here grown wholesale, acre upon acre. 'Long fields of Barley and of Rye,' as spoken of by the Laureate, are here transformed into vast enclosures of Cauliflowers, Cabbages, Celery, Onions, Potatoes, Carrots, Leeks, Gooseberries, Currants, Raspberries, Strawberries, and so forth. Splendid Cauliflowers, Cabbages, and Celery may here be purchased wholesale at less than a penny a head, thirteen to the dozen. Strawberries which have been known in the open market to fetch 8*d.* per pound have here been sold by the ton at 2½*d.*, while Raspberries have frequently proved such a glut that the growers allow them to rot on the trees rather than be at the expense of employing labour to pick them. The Celery rows here just now are a positive sight to witness. Earthed up as they are for bleaching or blanching purpose, the key is given to the mystery of successful cultivation—deep, loamy, friable soil. The landlords charge a good price for the land, but it grows good stuff, and the tenants do not complain. Their only present grievance is 'foreign competition,' which they say is eating them up, though judging from their portly persons and the establishments they maintain, we are rather inclined to believe that in this matter at least the farming mind is given to exaggeration."

— W. MCCORQUODALE, Wood Surveyor, Scone, Perth, writes as follows to the "Journal of Forestry" on the UTILITY OF ABIES DOUGLASII:—"I have every reason to believe that this will become the most remunerative tree of all our Conifers. One valuable advantage which it has over Larch and Spruce is, that in dry sandy subsoils, where those trees are generally affected with dry rot, the Douglas Fir will luxuriate admirably. Its healing power after receiving injury is very extraordinary. I have seen trees barked halfway round the stem in a manner that would prove fatal to any other Conifer, whereas in the Douglas Fir it heals over in two or three years. It is, too, a very accommodating tree, as it may be planted successfully at any season of the year. We have transplanted these trees from 6 to 10 feet high during the months of April, May, June, and July without a single failure. In 1857 we prepared, and enclosed with a fence proof against hares and rabbits, 13 acres of poor moorish soil, which had been cultivated as arable land. It was planted with Douglas Firs at 9 feet apart, and the intermediate spaces were filled up with Larch and Scotch Firs in equal numbers, as nurses, to 4 feet apart all over. The plantation is now twenty-three years of age, and the nurses are pretty well thinned out. I have just had some of the Douglas Firs measured, and many of them stand 40 to 45 feet in height, by 4 feet 3 inches in girth at 3 feet above the ground. We have now begun to use the thinnings of Douglas Fir as wire fence posts. In April 1878, upwards of twenty of these posts were put into a new wire fence, and were marked to test their durability, alongside some Silver Fir posts; the remainder of the posts forming the fence being of Larch. The Douglas Fir posts, although only of twenty years' growth, stood the driving into the ground as well as Larch of the same age could have done. They are wearing well, and show every indication of making durable posts."

— IN an excellent article in the *Cultivator* Mr. H. B. ELLWANGER, the able rosarian of the Mount Hope Nurseries, U.S.A., has recently discussed the respective merits of English Roses as compared with the same varieties grown in America. It appears that many of our finest dark Roses do not succeed well in America, neither does Madame Lacharme. After many instructive observations Mr. Ellwanger concludes thus:—"The National Rose Society has accomplished very great good, but we hope it will branch out into something wider, and use its influence to greatly shorten the immense list of varieties with which we are

now encumbered—varieties which are called distinct, but which have no real difference. What does a grower care whether one variety has smooth wood and another has thorns, if there be no essential difference in the blooms? If such a variety as Marguerite Brassac or Wilhelm Koelle do not show some marked improvement over their relatives, Charles Lefebvre and Alfred Colomb, they should be stamped out as early as possible. A committee of such men as Messrs. Paul, Cranston and Turner, who grow Roses on an extensive scale, have excellent opportunity of determining the value of new sorts at an early date. Add to these such judges as the President and Secretary of the Society, and the dictum of such a committee in relation to this and other subjects with which they are charged would be of very great benefit."

BRUSSELS SPROUTS.

IN the interesting chapter on Chiswick it is stated, on page 344, that the Brussels Sprouts generally are not buttoning well. I have a splendid lot, the produce of seed which is three or four years old. My sprouts were a failure last year, owing, as I believe, to the bad stock from which the seed came; and as I knew there was little or no new seed in the market to be depended on, I sowed some of the old lot last February, and have every reason to be pleased with the result. It is probable that Brussels Sprouts may need to be selected afresh in order to have them as good as they were before the series of bad seasons, and I should advise anyone who has a good stock to save some of it.—WM. TAYLOR.

FIG CULTURE IN POTS AND BORDERS.

To have good crops of this luscious fruit under glass preparation must be made at the present time, and I will refer briefly to trees established in pots, and to planting in borders. Trees in pots intended for early forcing that have been placed in the open air to mature the growth will now require to be taken under cover to keep them from the autumn rains. Any thinning or pruning of the shoots, or top-dressing the surface of the soil, should now be attended to, and the trees dressed with an insecticide, so as to have them ready for forcing in November. Until then keep them cool and dry, but do not allow the soil to become dust dry at the roots. Trees permanently planted out in the borders will, except those that are late, be shedding their leaves; and the houses, though required to be kept cool by free ventilation in favourable weather, must be closed when it is wet.

Lifting and root-pruning should be attended to as soon as indications of the ripening of the foliage are apparent. This more particularly applies to trees that are very luxuriant and do not produce fruit satisfactorily. Planting new varieties or making fresh borders should be attended to as soon as the foliage commences ripening. For Figs a border of moderate size is most suitable, but it must be efficiently drained with 1 foot depth of rubble, as brickbats, &c., with pipes beneath to carry off superfluous water. The drainage should be secured by a layer of turves grass side downwards. The soil should be 2 feet deep, putting it in 6 inches deeper in the first instance to allow for settling, as it ought to be allowed to do before planting. Turfy loam taken from a pasture about 4 inches thick, chopped up moderately small, adding a tenth of old mortar rubbish, and about 15 per cent. of half-inch bones. A 6-foot border is ample for the usual run of trellises.

Brown Turkey is the most reliable variety, and a fitting companion is found in White Marseilles. Negro Largo also is excellent, and the Grizzly Bourjassotte is delicious. Trees only requiring surface dressing should be attended to before the leaves fall, so that the roots may not be disturbed too much before forcing commences, as is likely to be the case when top-dressing is deferred until after the leaves have fallen.—G. A. G.

LAWN MOWERS.

I AM afraid some of your readers north of the Tweed would open their eyes a little on perusing an article in your issue of the 7th inst. to find that they have had a "WYLD SAVAGE" amongst them in search of a subject, and that he could find none in "a' bonnie Scotland" worthy of notice but the pretty *Tropaeolum speciosum*. I hope hotel proprietors will take the hint and grow something more cheerful in their gardens than "annuals and weeds," for it is quite evident that they have had a depressing effect upon the mind of your worthy correspondent. Your readers cannot yet have forgotten the strain in which "WYLD SAVAGE" wrote but a few months ago on the beauty and grandeur of the

woods, not in their summer beauty, but in winter, when all is bleak and bare; but in the words of Norton—

"But for thy soul it still had warmth and power;
Not to its cheerless beauty wert thou blind.
To the keen eye of thy poetic mind
Beauty still lives, though Nature's flow'rets die."

Why did "WYLD SAVAGE" not give us some similar description of those many wild romantic spots to be found in Scotland? I am sure they would have been acceptable to the readers of the Journal, and would certainly have been more in unison with his *nom de plume* than the common matter-of-fact thing, a lawn mower.

Most of what your correspondent says on this subject is true, and I hope he will not take it amiss if I make a few remarks on the same subject, even if we do not quite agree. He warns us against purchasing machines with the knives on a fixed spindle. Few are made like this now, but I believe there are some that have the ordinary arrangement reversed—namely, having the knives fixed and the sole-plate moveable, so that it can be adjusted to the knives, which answers the same purpose. "An occasional general cleaning will be advantageous," falls short of my standard on this point. Every time a machine is used, be it wet or dry, it should be thoroughly cleaned before being put away in dry quarters. If this is not done it will soon become so clogged that neither oil nor elbow grease will make one go smoothly. And before being put away for the winter it should be taken to pieces, well cleaned, oiled, and prepared for work again. I am glad to see that makers are now beginning to find out the value of having all gearing enclosed, and if chains could be enclosed in a similar manner there would be less grounds for the complaints "WYLD SAVAGE" lodges against them.

I am quite of a different opinion with regard to collecting the grass. The appearance of the "wee, modest, crimson-tipped flower" I always consider a sign of poverty of soil, and to collect and carry away every week a crop of grass only increases the evil. It is our practice to mow every fifth day—namely, Monday and Friday in one week, and on Wednesday in the week following. By doing so the work is light, the little grass scattered about is never seen, but does a great amount of good to the turf, invigorating the grass, so that Daisies are not so much seen, and the frequent mowing keeps the flowers from showing so much. We only use the box amongst flower beds and by the edges of walks. I also fail to see how "WYLD SAVAGE" can expect a man and lad to do more work with a 16-inch machine than two men would do with a 12-inch machine each. It is a plain case of 16 inches and 24 inches. My experience leads me to advocate light machines, frequent mowing, and leaving the grass uncollected, which promotes a healthy growth, and keeps it of that dark green colour so essential to a well-kept lawn.—R. INGLIS.

YOUR correspondent "WYLD SAVAGE" states that when the chain of a lawn mower is worn and the clog moved back as far as it will go, and then worn again, that the chain is of no more use. Is it not possible to have a link taken out of the chain? I say Yes, and any country blacksmith can do it. File the ends of two rivets and draw or punch them out, and the link will drop out; then rivet the next link as before, and the cog will want sliding as when new. The chain will be found to work as well as when it was new, and not slip off when mowing banks.—GEORGE PICKER.

FLOWERS IN DUBLIN.

LOBELIA CARDINALIS, L. ignea, L. syphilitica, red, white, and blue vars., are very beautiful, so is Tritonia Mc'Owani, Rudbeckia Newmanii, and one of the finest of all white Composites, Pyrethrum uliginosum. All the Marguerites (*Chrysanthemum frutescens*, vars.) are very bushy and floriferous, but they attract the flies in swarms, and the star-shaped flowers are thus spoiled by their excreta. Browallia clata var. caerulea, sown in June, and the plants pinched back until a fortnight ago, are laden with flowers.

Rubus rosaeifolius, figured on page 281, is pretty. We have only the double form, and much wish to obtain the single-blossomed type, which fruits abundantly, and is then very ornamental. I saw this last plentifully around the hill villages in Borneo, at an altitude of 3000 feet. Perhaps it was originally introduced there, although now quite abundantly naturalised. Van Houtte advertised and figured the single-flowered type some six or seven years ago, but I never saw it in cultivation.

I have now a pretty hybrid *Calceolaria*, *C. fuchsiaefolia* (deflexa of "Bot. Mag.") × *C. Pavoni*. It flowers at 10 to 12 inches high raised from seed and planted out, and may be useful as a winter bloomer indoors; at any rate it is interesting as a distinct hybrid.

The weather has lately been very bright, and Dahlias, Everlastings, Asters, and *Lilium auratum* (late-planted bulbs) are even yet fresh and attractive.—DUBLINENSIS.

BEURRÉ BOSC PEAR.

LAST week we figured a new Pear of considerable merit; this week we submit an old Pear of proved excellence and usefulness. There are brighter coloured Pears than Beurré Bosc, but when in good condition few are of better quality; the tree is also a very good bearer. It is a favourite Pear in Kent grown as an orchard

standard, and it would not be grown there if it were not profitable. In northerly localities it requires a wall, but in most sheltered gardens in the midland counties it succeeds well as a pyramid. This is essentially a useful Pear, as it is a pretty constant bearer and the fruit can generally be relied on. In the "Fruit Manual" Beurré Bosc has four synonyms—Beurré d'Apremont, Beurré Rose, Cannelle, and Marianne Nouvelle; and it is described as follows:—"Fruit large, pyriform. Skin almost entirely covered with thin cinnamon-coloured russet, leaving here and there only a small portion of the yellow ground colour visible. Eye open, placed in a shallow basin. Stalk about $1\frac{1}{2}$ inch long, inserted

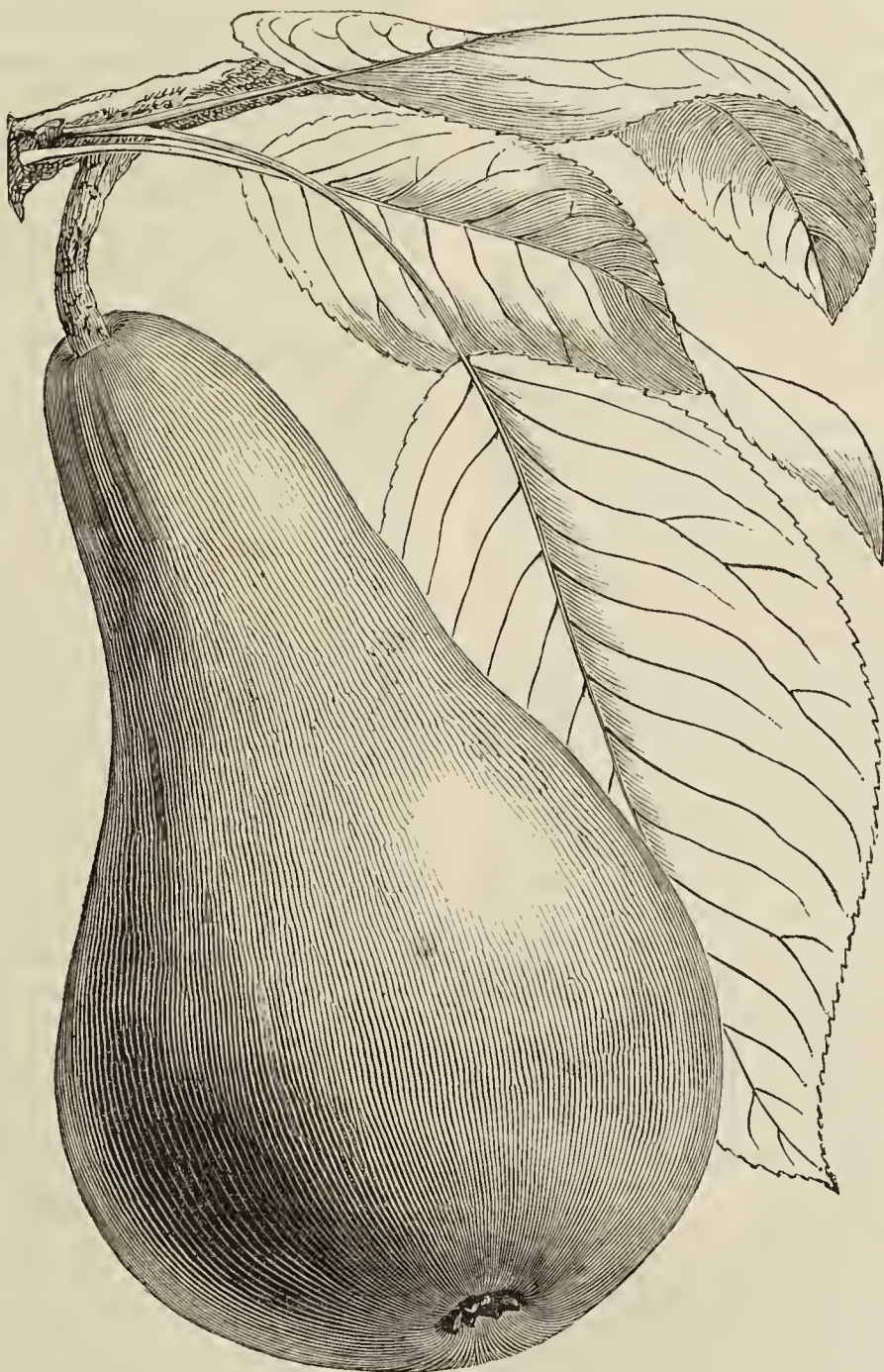


Fig. 70.—BEURRE BOSC PEAR.

without depression. Flesh white, melting, and buttery; very juicy, rich, and aromatic. A dessert Pear of first-rate quality; ripe in October and November. The tree is a good bearer, but unless grown against a wall or in a warm situation the fruit is apt to be crisp or only half melting. This, which is generally supposed to have been a seedling of Van Mons, was found a wildling at Apremont, in the Haute Soane, and was dedicated to Mr. Bosc, the eminent Director of the Jardin des Plantes at Paris."

SHOW POTATOES.

I AM glad to perceive from the courteous letter of Mr. Alexander Dean on page 346, that there were substantial reasons for doubting the distinctness of two of the varieties in the first-prize collection of twenty-four varieties at the late great Potato Show. "White Emperor," says Mr. Dean, "is just like Blanchard in form and outline," and the tubers of the former "showed discoloration because they

were large and forced nearer to the surface than the others." They were, therefore, according to Mr. Dean, just alike in form, and nearly alike in colour. I said no more than that, and further, I did not pass any opinion on the identity of the two varieties, and accounted for the opinions of others on the ground that I well know to be true, that "Potatoes vary much in different soils." The fact, however, still remains that all the other White Emperors were really white. These, therefore, had not been forced out of the surface of the soil, and thus the little problem is solved.

It appears there was still more reason for remarking on the very striking similarity of appearance between the Early Ohio and the Beauty of Hebron, for the principal difference, according to your correspondent, between the two varieties is in the haulm, that of the former being dwarfer, while the tubers on the average are rounder. I may remark on these distinctions that, as Mr. Beachey has observed, we do not eat the haulm; and as to the shape of the tubers, there were many examples of Beauty of Hebron in the

Show quite as "round" as the dish of Early Ohio in question. Although I did not touch one of them I saw several removed for the purpose of comparison, and noticed the unanimity of opinion relative to them. I never hinted at such a thing as "impropriety," for all growers are liable to purchase what is not actually a true stock, and exhibit the produce, as I have no doubt Mr. Dean did, honestly; and it is quite clear that the Early Ohio of Mr. Dean and the Early Ohio of Messrs. Daniels are not identical. The produce of both I assume will be sold, and we shall have two Early Ohios instead of one! If Mr. Dean does not think it of public importance that attention should be directed to a circumstance of this kind as soon as possible I venture to think he will almost stand alone among Potato cultivators. The parentage of the Lord Mayor was stated in a report of the meeting of the Royal Horticultural Society, held on July 27th, to be Extra Early Vermont and Early Market. Mr. Dean, however, now states that Early Rose, not Early Vermont, was one of the parents. Will he kindly say which is correct? Probably the latter is, but it would be well if the point were authoritatively settled, and no one can settle it so well as the raiser of the variety.

I may remind your correspondent that I was writing about Potatoes, not about exhibitors, and the best proof of my absolute impartiality is that I described one of Mr. Dean's varieties—Mr. Bresee—as a splendid long red kidney. Your correspondent does not object to this; yet when I with equal justice referred to the Lord Mayor as rather deep-eyed my statement is questioned! I will not say more on this point than that time will prove whether it is "rather deep-eyed" or not. I did not question its cropping character nor its quality, not knowing anything of either, and Mr. Dean's evidence on those points was not called for by my observations. I shall be glad if it proves a variety of real usefulness, and ranks in this respect with Schoolmaster, Magnum Bonum, and others. The latter variety I referred to in such a manner as to render it obvious that its omission from the short list of varieties that were shown in the greatest numbers or the best condition was a mere accident.

In some instances Mr. Dean appears to be very particular on the question of varieties being distinct, for he says, "Pride of America is but another Snowflake, and Edgcott Seedling and Yorkshire Hero are both Lapstones." There is about the same difference, and no more, between Early Ohio as exhibited by Mr. Dean and Beauty of Hebron as staged by several other exhibitors; but Mr. Fenn, one of the best judges of Potatoes in England, has said of the Lapstone that he considers it as near to perfection in quality as a Potato should be; can he or any unprejudiced judge say the same of the Beauty of Hebron? It is not good with me, and I shall discard it with several other varieties that are not fit to eat where a good Potato can be grown. I would ask, too, if the Yorkshire Hero is identical with the Lapstone, as Mr. Dean states, why both varieties are included in Mr. Dean's list of last year, and one priced at 1s. a peck more than the other?

Potatoes are quite sufficiently numerous without adding to the already too long list of varieties of questionable distinctness, numbers of which are not fit to be placed on a gentleman's table. I have proved this by the best of all tests, and the peremptory orders I have received to give the produce of so many of the varieties to the pigs.—A GARDENER.

PRUNUS DIVARICATA.

IN the "Botanical Magazine" for the present month, plate 6519, is an admirable representation of the above handsome tree, which was briefly referred to in page 275 of the last volume of the *Journal of Horticulture*. In the descriptive remarks accompanying the plate Sir Joseph Hooker gives the following particulars—"This has been for many years one of the most conspicuous spring ornaments of the Royal Gardens, where it forms a dwarf tree, standing to the west of the Cactus house, near the fine specimen of *Pinus Coulteri*, and so covered with white flowers in March or April (according to the season) as to appear as if snowed over. The flowers appear with the half-developed leaves, but have never been succeeded by fruit. Whether this should be considered as anything more than the wild form of the *Myrobalan Plum*, *P. cerasifera*, *Ehr.* (see tab. 5934), has been doubted by the excellent observer C. Koch, as I have stated under the latter plant; and, indeed, the characters whereby most of the native Plums are separated are not of very much moment. With regard to *P. divaricata*, however, its leaves when full grown, broadening at the base, and appearing with its smaller flowers, and its fruit not being intruded at the base, together with its remarkable habit, would appear to constitute sufficiently marked diagnostic characters. The petals, which are almost orbicular in the Kew specimens, are more obovate in native ones from the Caucasus, collected by Hohenacker, and in others from the Copenhagen Gardens.

Prunus divaricata was introduced into England in 1822, according to Loudon, probably from the Dorpat Gardens, when under the direction of its describer Ledebour, and is a small tree 10 to 12 feet high and broad, forming a hemispherical mass on the ground with a singularly graceful ramification; according to Boissier, it has a very wide geographical range, from Macedonia to the Caucasus and Northern Persia. The specimen at Kew was procured by the late Curator, Mr. J. Smith, from Messrs. Osborn of Fulham, about thirty-eight years ago."

OLD VICTORY OF BATH MELON.

I DO not know the origin of this Melon. I imagine it must have been raised many years ago, and if I may venture a surmise, it has probably descended from seed imported from Cabul. I have, however, no hesitation in giving my opinion that the Melon sent out by Mr. Gilbert a year or two ago under the name of Netted Victory is a totally distinct variety. I grew the Netted Victory last year from seed kindly sent me by Mr. Gilbert, so that there ought to be no mistake about its being the true variety; and it proved in my hands worthless. It was white-fleshed, small (under 2 lbs.), without a trace of net, and the flavour most insipid, although in the same house and under the same treatment other varieties were grown which produced fruit with a flavour leaving nothing to be desired. Now the old Victory of Bath which I have grown produced a large, rather oval fruit, well netted, with deep green flesh and a luscious flavour—a fruit, in fact, worthy of being placed on any dessert table in the land. I also received from Mr. Gilbert seed of what he called Improved Victory of Bath; that also, I may say, resulted in disappointment. In the *Journal of Horticulture*, vol. xxxvii., page 6, Mr. Gilbert does not deny having artificially netted his Melon, and confesses that he makes a practice of doing so "to please the eye;" though that may be a matter of opinion, but it appears to me that, under the circumstances, Mr. Gilbert should not have sent out this Melon under the name he did, as, from the evidence before us in your pages, it would seem that the Melon in question is of a sportive turn, sometimes being netted, sometimes smooth.

I notice in *Journal of Horticulture*, vol. xxvii., page 281, Mr. Gilbert writes, "My Victory of Bath Melon has solved the great problem of pleasing everybody." It would be interesting to know which of his Victories it is that he alludes to, and how it became his. The simplest plan, I might suggest, would be for Mr. Gilbert to explain, if he can, the origin of his Netted Victory, as there can be no object in keeping the matter secret; but for my part I would recommend every Melon grower to stick to the old variety.

In conclusion I would remark that it is a great pity so many so-called new Melons are year after year brought out and certificated. Nearly every gardener tries to produce a hybrid of his own, and confusion becomes worse confounded. I have tried most of the new Melons, but there are very few I would care to grow a second time. The two best in green flesh of late years are Exquisite and William Tillery, and in red flesh are Read's Scarlet, and one I received from Mr. Gilbert called Excelsior. Mr. George Abbey's Read's × Beechwood × Victory of Bath is also excellent and equal to any off he above.—F. C. TAYLOR, *Montrose*.

As Mr. Iggulden has pointed out, Mr. Pettigrew has made a mistake by confounding Gilbert's Netted Victory Melon with Gilbert's Improved Victory of Bath. I grew the latter many years before the former was heard of, and so have numbers of other gardeners. The Improved Victory of Bath I have found one of the best growers, setters, and croppers of all Melons, and the fruit is of very good quality but does not net well. When the Netted Victory was sent out I naturally thought it was a netted form of the Victory of Bath but was disappointed. Mr. Gilbert selected a name for the newer Melon that no doubt accelerated the sale of the variety, but it was a mistake nevertheless. Although I write under the above heading I am unable either to state the origin of the "Old" Victory of Bath or the difference between that and the "Improved" variety: probably Mr. Gilbert could tell us this.—J. D.

I AM fully convinced I was wrong in my description of Gilbert's Victory of Bath Melon, and thank Mr. Iggulden for his courteous correction in last week's *Journal* (see page 345). It is unfortunate and misleading to cultivators that two Melons so distinct in form of fruit and flesh should have names so similar. I was misled by the name "Netted Victory" (as stated by Mr. Iggulden) and described it in my note, thinking it was the Melon in dispute—namely, an improved variety of the old Victory of Bath, though I could see no similarity between the two Melons, as I stated in my description of it.—A. PETTIGREW, *Cardiff Castle*.

OUTDOOR CHRYSANTHEMUMS.—Visiting Paris in 1878, I was

crevice. The border, it is presumed, has been surface-dressed as previously advised. Fermenting materials, leaves, and stable litter well mixed should be placed on the outside borders previous to closing the house and commencing fire heat, the necessity for the latter being lessened by placing similar materials inside the house. Syringe the rods twice daily, and force but gently till the Vines show signs of breaking. Young Vines that have completed their growth should have the laterals gradually reduced to admit light and air to the buds and induce the earlier ripening of the wood. Vines in pots not required for early forcing should be placed under cover, a shed or other place cool and dry will answer, the roots being protected by straw or bracken. An open shed with a north aspect is preferable when growth is to be retarded for late spring planting or fruiting. Examine all ripe Grapes frequently, removing decayed berries, and ventilate freely whenever the weather is favourable, employing slight fire heat by day, when plenty of air should be given to expel damp; but in dull weather and the external atmosphere is charged with moisture slight warmth in the pipes without the ventilation is advisable.

Peaches and Nectarines.—Young trees frequently make strong wood, which require more time to ripen than moderate growths made by older trees. Trees of this description may have a trench taken out at about 3 feet from the stem all around, all the roots outside the radius being cut away. The trench should extend down to the drainage, and may remain open for about a fortnight, which will check any inclination to late growth and assist in the ripening of the wood; the trench should then be filled up again and rammed well down as the soil is replaced. The surface soil should be removed towards the stem of the trees down to the roots and from amongst them, replacing with fresh strong turfy loam with a sprinkling of about 12 per cent. of bone meal, ramming well down; this should be done before the leaves fall, and a good supply of tepid water being given fresh rootlets will be emitted at once. Allow no wood to remain in late houses that will need to be taken out at the winter pruning, but cut out all superfluous shoots, as with proper summer pruning little work will be needed when the trees are leafless. Any trees in late, and particularly unheated houses, glass walls or cases that have a tendency to late growth and imperfect ripening of the wood should have the roots carefully lifted, shortening the strongest and relaying them in fresh compost, after having put the drainage in good order. Ventilate fully day and night, and if fire heat is employed for ripening the wood turn it off at night. Proceed with the cleansing of the houses, the pruning and dressing of the trees as they become denuded of foliage; dress the trees, leaving nothing undone that is likely to have a deterrent effect upon the future increase of the pests infesting these trees, the most disastrous of which are red spider and brown aphids.

MUSHROOM HOUSE.

Continue to collect and prepare materials for making successional beds, and as the weather is becoming colder the beds should be increased in depth, so as to longer retain the heat and insure the more certain and speedy spread of the spawn. Care should, however, be taken not to place spawn in the beds at a higher temperature than 85° in the general body of the materials, allowing the bed to lie for about a week after being made, when the temperature can be ascertained and the spawning proceeded with as the circumstances warrant. It is essential that the materials be thoroughly consolidated, and to form a firm mass without being so moist as to destroy the spawn, or dry enough to prevent its spreading. In the case of beds that have been made and soiled some time the Mushrooms will usually appear in about six weeks, when the covering of hay or straw should be removed and the surface kept moist by damping lightly with tepid water from a syringe. Artificial heat from successional beds being made will not as yet be necessary, and damping of the house may not be necessary; but the temperature must not be allowed to fall below 50°, a mean of about 55° being most suitable, and a dry atmosphere should be prevented by damping available surfaces as may be necessary. Slugs should be sought for at night and destroyed. Woodlice are great pests. A little hay placed at the angle formed by the bed and walls will cause them to secrete there, where they may be destroyed

by pouring boiling water over them, a small quantity being sufficient to kill them.

PLANT HOUSES.

Stove.—Although shade is essential in the summer months, it is hardly possible in the winter to afford plants, foliage as well as flowering, too much light during the winter months. The glass, therefore, of this, and, indeed, all glass structures, should have a thorough cleaning both inside and out, and if this were done more frequently than it is, the general appearance of the plants would be better and their flowering capabilities increased. Many plants will grow freely and yet flower sparsely, which is mainly attributable to a deficiency of light for the solidification of the growth as made. The confined humid atmosphere necessary to be kept up for stove plants causes slime, &c., to form on the inside of the glass, to say nothing of soot and dust on the outside, and this takes more or less from one of the most essential elements of plant life—viz., light; besides, many stove plants are in active growth during the dull autumn and winter months, hence the importance of securing to them all the light possible.

Eucharis amazonica.—To secure a succession of flowers treat the plants liberally whilst making growth by keeping them well supplied with moisture both at the roots and in the atmosphere, feeding with liquid manure, maintaining a brisk heat, with plenty of light. When the growth is complete afford a rest of about six weeks' duration by keeping the plants somewhat drier and cooler; they will when placed in heat throw up their flower scapes in about three weeks. Plants that have completed their growth should now be rested by keeping them in a temperature of about 55° until the beginning of December, then place them in a temperature of 65° to 75°, and, if available, a bottom heat of not exceeding 90° at the base of the pots. Flowers will thus be obtained for decoration at Christmas and the new year.

Griffinias.—Seldom are these beautiful bulbous plants met with, and yet they are amongst the finest of autumn-flowering plants, expanding their blue and white-striped flowers in succession over a lengthened period. The individual flowers last in a cut state a week, and are of a soft violet colour with a white central stripe down each of its curved narrow petals, being well suited for bouquets. The umbels of flowers are produced somewhat like an Agapanthus, and the flowers open from September onwards. The natural season of growing is during the autumn and winter months, and should be duly supplied with moisture, never allowing them to become dry, providing a temperature of about 60° minimum in winter; and after the growth is complete, as it is about April, they may be removed to a greenhouse not having a less night temperature than 50°. Fibrous loam with a little sand suits them. The bulbs should be kept about two-thirds above the soil. Being slow growers they are some time in attaining to a flowering size—usually three years, during which they should be kept growing through the summer up to August in a cool stove, and then placed in a greenhouse for about two months, the temperature not being lower than 45° at night. Good drainage is essential, as during growth good supplies of water is necessary, and never allow the soil to become quite dry, or the foliage will suffer.

All winter-flowering plants should be kept well up to the light, to insure sturdy growth, large heads of bloom, richness of colour, with durability in the flowers. *Gesnera zebrina*, *G. zebrina splendens*, and *G. exoniensis* should be kept in plenty of light, not allowed to lack water, and be grown in a temperature of 60° at night. If in small pots supply with liquid manure. *Caladiums* will be going off; lessened supplies of water will be necessary, but do not withhold it altogether.

NOTES ON VILLA AND SUBURBAN GARDENING.

KITCHEN GARDEN.

Beet and Carrots.—It is now advisable to lift and store the roots of these, as the former are liable to injury from severe frosts, and the latter when left in the ground are much infested by insect pests, indeed are already much damaged in this respect. Select a dry time for the work, and after having twisted off the tops of the Beet, and cut off those of the Carrots to near their junction with the roots, lay them in heaps for a few days in order that they may dry thoroughly previous to being stored. The tops should be thrown over the heaps

in the evening, and only taken off during fine days. When found to be dry, either pack away in dry sand in a shed, outhouse, or dry cellar, or they may be built into conical-shaped heaps on a dry spot, covered lightly with long fresh straw, over this being thrown a layer of earth to be well beaten on. The straw, where it meets at the points, should be arranged above the soil so as to form a funnel, which, though impervious to rain, will yet form an outlet for any vapour, which, if confined, might lead to fermentation. When lifting the Beet select all the smallest roots with foliage intact, and bed them in till they can be used in the flower garden in such a manner as will shortly be advised.

Late Potatoes.—Nothing is to be gained by leaving these in the ground after this date, and much may be lost by damage from severe frost. All that are now sound may be safely stored away. The ware of those of table size should go into one heap, and the middlings into another, or at all events enough of these for next year's planting, and the chats, or the very smallest, be given to the pigs or boiled for the poultry. Potatoes may either be stored in heaps in dry sheds, where they can be well covered with straw during the prevalence of severe frost. Unless the sheds are much sheltered and well built it is really advisable to line the walls and floors with straw as the tubers are being put in, as this may eventually save much labour. Failing sheds they may be thrown into heaps, covered with straw, and when dry covered with earth, leaving the funnel outlets as advised for the Beet and Carrots.

Various.—Parsnips are usually left in the ground, the only effect that frost has on them being to make them sweeter. In some instances they are lifted and stored in common with the above kinds. Turnips, again, are perfectly hardy in the southern counties, and may be left on the ground. They should, however, be lifted and stored if found to be growing too large, especially if the successional sowings fail. The autumn Cauliflowers are turning in almost simultaneously, and to prolong the crop it is advisable to lift some that are not very forward, and to bed them in where they will be cooler and also convenient for covering over during frosty nights with mats or other material. The caterpillars must still be looked after, as they soon disfigure Cauliflowers. Endive is now becoming extremely useful. The Moss-curl requires but little blanching, but the Green-curl and other large varieties should, when dry, be either covered with tiles, boards, or pots, or be tied up with matting in the same way as some Lettuces are tied. The Broad-leaved Batavian are the hardiest, and therefore should be reserved for the very latest supply. It is very advisable to lift a quantity of each variety, also of any full-grown Lettuce there may be, and pack away rather closely in a frame. A great quantity can be stored in a three-light frame; if occupied previously with either Melons or Cucumbers so much the better, as the soil will suit them. To avoid bruising the leaves lightly tie up with matting; lift with a good ball of soil, pack them in closely, loosen the ties, and water in should the soil be dry; give abundance of air, blanch them as required, and look closely after mice, as they are very fond of the hearts. Endive may also be stored in open sheds, but they are much crisper taken from the moist frames. Continue earthing up Celery as the inner growth advances, always selecting a dry time for the operation, preventing as much as possible the soil running into the hearts, and rounding-off as well at the final earthing-up. The Asparagus when quite yellow should be cut down, and then all weeds cleaned off, a good dressing of half-decayed manure given, and cover lightly with soil taken from the sides or otherwise. The decaying leaves of Brussels Sprouts and other winter greens and old Cauliflower stalks to be cleared off.

GREENHOUSES.

Potting Bulbs.—The present is a good time to pot those not intended to be forced, which in the case of many amateurs will include the whole stock of Hyacinths, Narcissuses, Tulips, Crocuses, Snowdrops, Ixias, Lachenalias, and Scillas. The soil suitable for the whole may consist of two parts good turfy loam to one of well-decomposed horse droppings or other manure, with a good addition of sharp sand or road grit. The pots must be clean and well drained, and in potting always place some of the roughest of the soil over the crocks.

Hyacinths.—For ordinary decorative purposes the 5-inch pots will

be found the best size in which to grow these, but 6-inch pots are usually preferred for those grown for exhibition, and which as a matter of course are selected bulbs of the best description. When potting fill the pots nearly full of soil, sprinkling some sand in the centre, on this place the bulb, and press it firmly into the soil till it is very slightly below the level of the rim, the bulb being finally about three parts covered with soil. It is very important that they be potted somewhat firmly, or otherwise when the roots start they are apt to raise the bulb, which necessitates repotting.

Hyacinths in Glasses.—To prolong the display it is advisable to place bulbs in the proper and easily procured glasses at intervals of about fourteen days. The glasses should be filled so that the water nearly touches the bulb, and be at once placed in a cool dark place for a few days to induce the formation of roots prior to the expansion of leaves and flower spike.

Narcissus.—Strong varieties of these, with corresponding large bulbs, may be either grown singly in 5-inch pots or three bulbs in 8-inch pots. Pot similarly to Hyacinths.

Tulips.—These may be grown either in 5-inch or 6-inch pots, placing three bulbs in the former and six in the latter, one in the centre and the remainder disposed round the sides. They should be firmly pressed into the soil, allowing the points to protrude slightly, and the fullest sides of the bulbs should be on the outside, so as to give the points and consequently the blooms an inward tendency.

Crocuses and Snowdrops.—The best sizes in which to pot these are the 4-inch and 5-inch pots, the number placed in each varying according to the size of the bulbs. As a rule four or six of the former may be placed in the respective sizes, and the Snowdrops and Scillas somewhat thicker.

Lachenalias, Ixias, and Sparaxis.—These are not quite so common as the foregoing, but all are worthy of more extended cultivation. Place six or seven of the first in 5-inch pots, and three of either of the other two in 3-inch pots, or seven in 5-inch pots. The Lachenalias may be disposed all over the under sides of hanging baskets, and when thus employed are remarkably effective.

TRADE CATALOGUES RECEIVED.

Francis and Arthur Dickson & Sons, The Upton Nurseries, Chester.—*Catalogue of Select Roses.*
George Bunyard & Co., Maidstone, Kent.—*Catalogue of Fruit Trees.*
George Cooling & Son, Bath.—*Catalogue of Roses, Fruit Trees, and Shrubs.*



* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense. Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Tea Rose Election (Planter).—The varieties named in the list published last week were selected for their general usefulness, and not for their value as exhibition blooms. They will be therefore admirably adapted for your purpose, and you may safely plant as many of them as you require in your garden in Surrey. The result of the election of twenty-four varieties will probably be published next week.

Zonal Pelargoniums in Winter (G. S.).—If you desire the plants to flower freely they must have a very light position in a house in which the temperature never falls below 45° at night, and if it is 50° in mild weather all the better, with a proportionate rise during the day. Some varieties will flower in a cooler temperature, but will not possess the freshness of growth and size of trusses that render the plants so striking in midwinter. We have seen Mr. Cannell's Pelargonium house a "blaze of bloom" in January, the trusses of some of the varieties being 6 inches and more in diameter, and the colour extremely rich.

Mexican Potatoes (Henry Peto).—These are referred to on page 176 of our issue of August 19th, 1880, as being grown successfully by Captain Mayne

Reid at his residence near Ross. We do not know whether the Captain has seed for disposal, nor do we know from whom else seed can be obtained. A letter directed as above would no doubt find its destination; we do not know a more precise address.

Climbing Roses for Cool House (*S. U. S., Walsall*).—You do not say what colours you require, but the following three varieties will probably give you satisfaction:—*Maréchal Niel*, *Gloire de Dijon*, and *Beauty of Cheshunt*.

Clematis Star of India (*J. Lawson*).—This is an excellent variety, but by no means so "new" as you suppose. It was raised by Mr. Cripps of Tuubridge Wells, and was certificated in 1867. It flowers in the autumn at the same time as *C. Jackmanni*.

Pruning Coleuses (*J. Hope*).—The plants may be moderately pruned provided you have a house with a minimum temperature of 60° in which they can be placed; but if you have not such a heated structure, pruning would accelerate the decay of the branches and perhaps cause the death of the plants.

Wholesale London Seedsmen (*E. J.*).—Mr. Legerton's address is 5, Aldgate, E.; Messrs. Hurst & Son, 152, Houndsditch, E.C.; Wrench & Sons, 39, King William Street, E.C.; Mr. Cooper's, 90, Southwark Street, E.C.; G. Gibbs & Co., 26, Down Street, Piccadilly, W.; T. Gibbs & Co., 47, Half-moon Street, Piccadilly; Nutting & Sons, 60, Barbican, E.C. You will find several other addresses in the "Horticultural Directory," which will very shortly be published.

Tubs for Myrtles (*T. A. B.*).—We are unable to recommend a maker of these articles; but any intelligent carpenter could make square tubs, plain or ornamental. Those of large size should have stout corner pieces to act as legs, and the thickness of the sides must be determined by the size of the tubs. Pitch pine makes excellent tubs, which can be either stained or painted. Round tubs of any size and pattern can be made by coopers, but the cheapest plan is to purchase paraffin casks and cut them in halves; these are very durable, and suitable for plants and shrubs.

Quinces and their Uses (*G. S.*).—The fruit of the Quince you have sent us is less than one-fourth the size of a fully grown and ripe fruit, and is the product of a late summer, not an early spring blossom. Quinces are used in various ways. They are commonly used in very small quantities in Apple pies; then there are Quince cakes, Quince cream, Quince marmalade, Quince jelly, Quince pudding, Quince tart, as well as compôte of Quinces, syrup of Quinces, pickled Quinces, &c. But though their uses are so varied the fruit is not largely used, and one tree is generally sufficient in most moderate-sized gardens. The trees require no pruning, and when laden with large yellow fruit they are very ornamental.

Lifting Vines (*W. F. M.*).—Your Vines can no doubt be greatly improved by making a new border as you propose, and placing the roots about 6 inches from the surface; but without seeing the old Vines we cannot state whether it would be preferable to replant them now, or obtain young Vines in pots and plant them in the spring. Cannot you obtain the aid of a practical gardener in your neighbourhood to inspect the Vines and advise you on the subject? If you lift the Vines you should do so at once. Old Vines when lifted often produce excellent Grapes, but young Vines eventually produce the finest bunches. Your proposed plan of making the border is good, but it will not be necessary to make it of the full width the first season. See what is said on this subject on page 227, the issue of September 9th.

American Blight on Apple Trees (*F. J.*).—The shoot you have sent us is infested with this destructive insect (*Aphis lanigera*). All such shoots as the one before us, which is an unripe secondary growth produced after summer pruning, we should cut off at once and burn; their removal now cannot possibly injure the trees, and you would quickly destroy thousands of insects. As soon as the leaves have fallen from the trees dissolve soft soap at the rate of 5 or 6 ozs. to a gallon of water, and to each gallon of the solution add a wine-glassful of paraffin, and apply the mixture to every portion of the wood with a brush, forcing it with especial care into every crack or inequality in the bark where the insects lurk and pass the winter. By adopting this practice you will reduce considerably and possibly extirpate the pest. It does not matter which way you train the cordons—train them to the south. The angle you name is correct. The Durondeau is a very handsome and excellent Pear, and will succeed well on the aspect you name in most districts. Your other question shall be answered next week.

Summer-pruning Fruit Trees (*G. S.*).—The condition of your trees ought to prove whether your system of shortening the extremities of the shoots in summer is right or not. If your object is to have dwarf compact trees, and these are studded with blossom buds, your pruning will have proved correct. If large specimens are desired capable of producing a bushel or two of fruit each, then the extension shoots must not be shortened nearly so closely. Our plan is to let them grow until about the middle of August, and then pinch out the tips of those that exceed 18 inches in length, as growth made after that time seldom ripens. If trees are at all luxuriant your close mode of shortening the branches would not result in the production of fruit spurs unless root-pruning was also adopted. You may cut down your Oleander now, and in due time it will produce fresh growth, which must have full exposure to light.

Buffalo Horn Manure (*B. G., Fulham*).—You are quite right in your assumption that the value of horn shavings as manure has been long known, although the above fertiliser was only put prominently before the public two or three years ago by Mr. Wills. Twenty years ago a book by Dr. Lancaster on "The Uses of Animals in Relation to the Industry of Man" was published, which contains an instructive chapter on "waste." After referring to the usefulness of various substances thus usually denominated, the author observes: "Commerce aids in the profitable avoidance of 'waste.' Forcefully was this enforced on our attention in what has so wrongly been styled 'that waste of water the Atlantic.' We there fell in with a vessel, and when hailed as to here, where from, where to, and purpose, the reply was 'From Miramichi to Belfast with buffalo tips.' The world was circumnavigated that the tips of horns might be converted into handles, and their shavings would be mingled with the manure heap." Horn shavings are valuable as manure because they slowly decompose and give out ammonia for a very long time. They also contain a small quantity of carbonate and phosphate of lime.

Apples for Orchard (*P. Gruel*).—We desire to give a reply that will be useful to you, and we do not feel that we can do so without more precise information relative to your requirements. If you require as many varieties as possible without reference to their bearing qualities you will find them in any good nurseryman's catalogue, with their period of use; but if you wish to grow those varieties that are the most profitable for sale, or for affording you a supply of good fruit for home use, you will err by growing "all kinds of late Apples for kitchen and culinary purposes," as those would number 150 varieties, many

of which, though possessing some points of excellence, would not occupy the space so profitably as others. If you will state the object you have in view and the number of trees you require we will make a selection of those varieties that we think will best answer your purpose. We presume by "late varieties" you mean those that will afford a supply of fruit from November till May.

Podophyllum peltatum (*R. C., Kensington*).—The plant to which you refer is included in the natural order Ranunculaceae, and is known as the May Apple and the American Mandrake. The medicinal substance Podophyllin is an extract from the dried rhizome and is employed as a purgative. The fruits when ripe are yellow and about the size and shape of an egg, being known in North America, of which the plant is a native, as Wild Lemons.

The "Cottage Gardeners' Dictionary" (*A. J. Long*).—A new edition of this work is in preparation, and the publishers are endeavouring to have it ready for distribution early in 1881.

Fruit Trees for Training to Walls (*W. W.*).—For the south aspect:—*Apricots*: *Oullins' Early*, *Kaisha*, and *Moorpark*, two of each; and one *Peach Apricot*; *May Duke* and *Governor Wood Cherries*, with *July Green Gage Plum*. You may omit a *Cherry*, and have *Green Gage Plum*; or if you want the south aspect all *Apricots* add to those named *St. Ambroise* (one) and *Hems-kerk* (two). South-east aspect:—*Plums*: *Green Gage*, *Kirke's*, *Jefferson*, *Coe's Golden Drop*, *Deunistou's Superb*, *De Moutfort*, *Guthrie's Late Green*, *Transparent Gage*, and *Tickworth Impératrice*, all for dessert; for cooking, *Early Prolific*, *Victoria*, *Prince Englebert*, and *White Magnum Bonum*. If these would be too many *Plums* substitute the *Pears Jargonelle*, *Beurré Superfin*, *Marie Louise d'Uccle*, *Marie Louise*, *Van Mons Léon Leclerc*, and *Joséphine de Malines*. We should, however, keep the *Plums* and add a *Cherry*—viz., *May Duke*. South-west aspect:—*Pears*: *Jargonelle*, *Clapp's Favourite*, *Williams' Bon Chrétien*, *Beurré Superfin*, *Louise Bonne of Jersey*, *Gratioli of Jersey*, *Marie Louise*, *Hacon's Incomparable*, *Beurré Diel*, *Beurré Bachelier*, *Van Mons Léon Leclerc*, *Glou Morcean*, *Joséphine de Malines*, and *Bergamotte d'Esperen*. *Apples*: *Cox's Orange Pippin*, *Ribston Pippin*, *Golden Pippin*, and *Cockle Pippin*. North aspect:—*Morello Cherry* is the best, and bears more satisfactorily than any other. *Jargonelle*, *Williams' Bon Chrétien*, and *Comte de Lamy Pears* also succeed; with such *Cherries* as *Empress Eugénie*, *May Duke*, and *Late Duke*; and *Plums*—*Mitchelson's*, *Gisborne's*, *Prince Englebert*, and *Victoria*.

Jerusalem Artichokes (*M. A., Belfast*).—These are greatly relished in many places cooked in various ways, but more especially in soups. Could the use of them be made popular, they would be no bad substitute with those who prefer a waxy Potato to a mealy one. They produce best when planted afresh every year in rows 4 feet apart, and 18 inches from each other in the row; but they will stand for years in the same ground, and afford plenty of produce, only the tubers will not be so regular. We have never known disease to affect them, and we have scarcely ever seen the tubers interfered with, except by rats and pheasants. We have often been surprised that they have not been more planted in the open parts of covers and game preserves; the stems would give shelter, and the roots abundance of food.

Plum Tree Unfruitful (*S. P., Notts*).—Your *Green Gage* would, no doubt, be very much improved by taking it up, bringing the roots nearer the surface, and giving it a little fresh soil to grow in. The present is a good time to do it. First unnailed the tree from the wall, only leaving a few of the principal branches secured to the wall to prevent them from being broken. Dig a trench all round the tree 2 feet deep, or as deep as the roots, and about 6 feet from the stem; then with a fork work the soil carefully away from the roots, always drawing the fork towards the outside of the trench. When the soil has been taken away to within a foot or so of the stem the whole may be carefully lifted up. If the tree is a heavy one it must be lifted by means of a lever. This should be done gradually, and as the tree is raised soil should be placed beneath it. In raising the tree see that the branches that are left fastened to the wall are suffering no injury. As soon as the tree has been raised to the desired height spread the roots carefully out, sprinkle some fine soil in amongst them, and frequently shake them with a small pointed stick so that the soil may become settled about them, taking care to keep the points of the roots the lowest. As soon as all the roots have been properly covered with soil give the tree a good soaking of water, then add more soil, and finish the operation with a thick mulching of rotten manure. If the weather remains dry syringe the tree two or three times daily. The roots will at once commence growth, and the crop next year will not be injured if the operation is performed with care.

Trees and Conifers for Screen (*An Old Subscriber, Plymouth*).—There is only one Poplar that will be suitable for "planting close to a wall with a row of Conifers a few feet in front of them," and that is the Lombardy Poplar (*Populus fastigiata*). This is a quick and very close grower, and planted 6 feet apart would soon form a close hedge and require no pruning. You could take off the tops of the trees at any height required. The Black Italian Poplar (*P. monilifera*) is perhaps the quickest grower of all trees. The rate of growth in good soil near London is thirty and upwards in seven years. It bears cutting well, but much labour would be involved in preventing it injuring the Conifers a "few feet in front of it," and also encroaching on your neighbours' property over the wall. Poplars can be removed when of large size, but no one could say that trees 20 feet in height would be safely transplanted and grow freely without seeing them, or knowing the nature of the soil in which they are growing and the treatment to which they have been subjected. The distance for planting can only be determined, for your purpose, by the size of the trees when planted. This species is eight or ten days later in producing its leaves in the spring than the Lombardy Poplar. If your space is as limited as your letter implies we think the tree last named will be the most suitable for your purpose, and as quick growth is an object the soil should be well trenched to a depth of 2 feet, and as wide as possible. *Cupressus macrocarpa* grows much more rapidly than *C. Lawsoniana*, but large specimens of the former do not transplant well. Small examples planted 6 feet apart in good soil would soon form a hedge 20 feet high that would require no clipping. *Lobb's Arbor-Vitæ* (*Thuja Lobbiana*) is a beautiful hardy free-growing Conifer—close, dense, and elegant. It is highly suitable for a screen, and very ornamental. We doubt if any other Conifer would answer your purpose better than this; although it does not grow so rapidly as *Cupressus macrocarpa* it is not injured by the most severe weather.

Burning Soil (*T. A. Bowdon*).—If you can burn the soil that you have hitherto failed to render fertile, you will no doubt render it immediately and permanently productive. We know of no greater success in burning soil than that of Mr. David Thomson of Drumlaugh, when he was gardener at Dyrham Park near Barnet, and his process was described as follows, and is reprinted from page 17 of our little manual "Manures for the Many."—"As soon as a quarter in the garden became vacant, a fire or two were started, according to the size of the quarter. When only one fire was required, it was started in the middle of the quarter. The site for the fire was first trenched to the depth of 2 feet 9 inches, turning the top spit (which had through a long course of years

been improved a little by liming, the addition of ashes, road scrapings, &c.), into the bottom of the trench, taking out the two bottom spits for burning. So thoroughly clayey was the greater part of the soil moved, that the men had to dip their tools in a pail of water at every lift, to make the next spadeful slip off the metal. On this site the fire was commenced. Wood which was only fit for charring or firewood, and which is generally plentiful enough about most gentlemen's places, was used. In that locality coal was costly, and not so effective in this case as wood; the latter also affording in burning a desirable quantity of potash. The site for the fire being ready, a little stack of wood was formed 5 feet in diameter at the base, tapering cone like to the height of 5 feet, beginning with a few dry faggots in the middle, and finishing with stronger junks of wood round the outside. All round this stack of wood a coating of the clay was laid to the depth of about 1 foot. It was found best to pack it on in lumps as it was turned out of the trench. When this was done the wood was set fire to at the centre, and long ere the wood was all consumed the clay caught fire and burned freely. As soon as the first layer was nearly burned through another layer was added all round, which in its turn soon burned through also. The fire was then broken down with a strong iron-handled hoe, for the double purpose of adding more wood to quicken the fire and enlarging the basis of operations. After the fire was thus set agoing the wood was of necessity laid horizontally over the burning heap, putting the strongest pieces of wood next the burning mass, and finishing off the layer with the smallest, to prevent the clay from lying too closely to the wood and obstructing the draught necessary to combustion. In the meantime trenches were opened at the extremities of the quarter, and the clay taken out, as already described in making the site for the fire, and forwarded to the fire, there being the solid undisturbed surface to wheel it over, and the distance lessened as the fire became larger and required more feeding. But to return to the fire. When it was again found necessary to break it down for the purpose of extending the base and increasing its capacity for consuming the clay, another layer of wood was added, and then a layer of clay over the surface, and all round the outside of the heap. After this, as the layer of clay was burned through, another was packed on all over and round without any wood, and so on with two or three layers, till it became necessary to enlarge the base of the fire, by drawing it down from the top, then more wood was added; and from the great power which the fire attains it is necessary to have plenty of clay and men at hand to cover over the wood quickly, or it would be consumed without doing much good; and so this process was continued till the necessary quantity was burned. I have frequently had three great fires going at a time, on to the tops of which I have wheeled layers of clay to the thickness of 3 feet and more at a time. When the fire became powerful it formed a solid pile of fire, which very soon worked its way through thick and successive layers of clay, transforming what was once an insoluble, wet, tenacious paste, into a heap of material greatly altered in its mechanical properties, and with a great capacity for the absorption of ammonia, besides being mixed with charred wood and potash. As soon as the heap was sufficiently cool to be moved it was wheeled back over the surface of the quarter and regularly spread, and the large lumps broken up. On the surface of all was wheeled a garden rubbish heap, rotten leaves, road scrapings, dung, and other decayed vegetable matter that could be obtained. A trench was then opened at the end of the quarter, and the whole was turned over and mixed the same as is done with a compost heap, to the depth of the original clay, which was forked up as well as it would allow at the bottom of each trench. This formed a staple on which almost any crop that could be put on it in the way of vegetables grew with such a luxuriance as I have never seen equalled either before or since. I have seen Brussels Sprouts over 4 feet in height studded with hard sprouts, more like a rope of Onions than anything else. Peas, Cauliflowers, &c., were amazingly fine crops. One quarter which I burned in 1854 had the finest crop of Carrots that could be desired, and to have attempted such a crop on it previous to its being passed through the fiery ordeal would have been in vain."

Tokay Wine (*Customer*).—Apply to any leading wine merchant. Tokay is a district of Hungary. The wine is the produce of various kinds of Grape, but the soil is peculiar, being of volcanic origin. The best vintage is not at Tokay, but in a neighbouring district called Tallya, and was celebrated as long since as the sixteenth century.

Names of Fruits (*G. Picker*).—1, Wyken Pippin, very fine; 2, Unripe, perhaps the Old Man Apple; 3, Gravenstein; 4, Winter Peach; 5, Edinburgh Cluster; 6, Striped Beefing, richly coloured. (*Mrs. R. W. H.*)—The Pear is Nouveau Poiteau.

Names of Plants (*J. C., Clonmel*).—The specimen you sent was so much withered that its name could not be determined with certainty, but it resembles *Silene conica*. (*No Name*).—1, *Adiantum concinnum*; 2, *Pteris serrulata cristata*; 3, *Pteris serrulata*; 4, *Rondeletia speciosa*.



POULTRY, PIGEON, AND BEE CHRONICLE.

ROTATION FOR CROPPING LIGHT SOILS.

(Continued from page 360.)

AFTER having noticed the principal rotations on light chalk soils advocated and practised by the most experienced farmers, we will now describe in a similar manner the most valuable rotations adapted for the sandy and light soils, commonly called the Bagshot sand, much of which was formerly in heath and wastes, used chiefly for the rearing of Grouse, and warrens for the breeding and sale of Rabbits. Very extensive farms in different counties have been reclaimed and brought into cultivation, and claiming in many instances the credit of being some of the best farmed land in the kingdom as regards the soil. These sandy

soils are, owing to their position as well as variations of the subsoil, capable of being cropped in various ways, for in those cases where the surface is sharp sand the subsoil is often somewhat stronger, and calculated to support vegetation of a more valuable kind than the poorer soils, which consist of sand, resting also on a subsoil of sand. Again, when sandy land is situated near populous towns the growth of cereals may to some extent be disregarded; particular attention can be given to the production of vegetables, which may be sold as food for the people, or when an over-supply takes place they may be used as food for cattle in the ordinary way. This is one of the privileges or advantages which the farmer has over the market gardener.

As a farming rotation of cropping for sandy land we will again take a farm of 450 acres for illustrating the rotation we recommend. Taking first a farm situated away from towns and in a purely agricultural district, where the object is to keep a large flock of sheep, in order that as full crops of cereals, &c., may be grown as the soil is capable of yielding, our first rotation will apply chiefly to farms in a district where the climate is favourable, such as are frequently found in the eastern, southern, and some midland districts of the kingdom. For sandy land under such circumstances we recommend—in fact, we know of a farm under capital management set out in a seven-course rotation as follows:—1st year, Swedes, Turnips, Mangold, &c.; 2nd year, Barley; 3rd year, Turnips; 4th year, Wheat; 5th year, Clovers and Grass; 6th year, old Clover and Grass lea, Turnips, &c.; 7th, Wheat. Upon setting out the 450 acres in courses we will take 30 acres and lay down 10 acres of Lucerne for permanency, and 20 acres in Giant Saintfoin with Perennial Rye Grass, &c., so that as the Saintfoin after some years may die away the land may be left in permanent pasture. We have, then, 420 acres on which to rest our rotation, and under a seven-course it will give 60 acres as the lain for certain crops; commencing with 60 acres of root crops prepared by autumn fallow, 10 acres sown with Mangolds, 10 acres of White or Red Intermediate Carrots, 20 acres of Swedes, and 10 acres of early Greystone Turnips, to be fed upon the land either as a whole or in part with sheep, or part by bullocks and horses, &c., at the farmstead. This land after being fed off by sheep will be made close and productive by the tread of the animals, and will not only have afforded excellent lying for sheep in the winter and early spring, but will with an allowance of oilcake spent on the land, be as productive for cereal crops as the soil will allow of. The second course will be 60 acres of Barley, which may all be sown early, for nothing but frost and excessive rains can defer the seed time on such land. The third course will be 60 acres of roots, preceded by green crops, Rye, Vetches, and Trifolium, all fed off by sheep in spring, then seeded for early Turnips in succession, to be fed off by sheep in the autumn, which feeding, as a preparation for Wheat, may extend to the first week in December, as this soil will not only carry the stock in any weather, but may also be sown with Wheat in almost any weather except frost. The land after two dressings or foldings by sheep will then be in a fertile state. The fourth course will be Wheat (60 acres), which will be sown in divisions as fast as the roots are cleared off, with such varieties as may be suitable to the time of sowing, the soil, and climate of the farm. Fifth course to be Clover and Grasses, 60 acres. All these will be sowed in the Wheat in the first dry weather in the spring, and harrowed-in with the chain harrow, and rolled with a heavy roller; 30 acres will be seeded with Red Clover, Alsike, and Giant Saintfoin mixed; the other 30 acres to be seeded with Dutch Suckling and Hop Clover as it is called, with Perennial Rye Grass and Italian Rye Grass mixed. The sixth course will be 60 acres of old lea; 30 acres of Clover lea, to be cut twice for hay; the remaining 30 acres to be fed in the spring and ploughed and pressed for Turnips, to be fed off by sheep eating cake, &c. After the Clover

lea has been dunged the whole lain will be in good condition for the seventh course, which will be 60 acres of Wheat, concluding the rotation. In this rotation there will be 120 acres of Wheat and only 60 acres of Barley. The advantage of the Wheat crop over Barley on sand land is that Wheat being winter-sown and well-manured will succeed better Barley, as the spring tillage for the latter in a dry spring or summer makes the crop more hazardous than any winter-sown corn. This rotation or course of cropping is only adapted to outlying districts.

We, however, now must refer to land of the same light description but situated in a favourable climate and near to populous towns, where a large number of consumers will require an extensive supply not only of vegetables but milk and butter. The rotation we advocate will be calculated to supply this demand, and in consequence dairy cows will take the place of sheep for the consumption of vegetable crops, and the cropping with vegetables will be so arranged as to be made available either as food for the people or for cattle under certain circumstances connected with supply and demand. Notwithstanding these are the leading points that relate to the growth of vegetables, the produce of cereal and pulse crops must not be neglected in order that straw, hay as fodder, litter, and corn for meal may be made to some extent supplementary as the food of stock, but also for the purpose of sale when the prices are satisfactory. To illustrate our rotation as recommended we will again take a farm of 450 acres, 50 acres of which may be laid into Lucerne, Saintfoin, and permanent pasture, as alluded to in a former rotation. We shall then have 400 acres to be cropped on the four-course rotation; and still keeping in view the fact of a large number of dairy cows to be provided for, the rotation will be—1st, Wheat; 2nd, green crops and roots; 3rd, Lent corn; 4th, Clover and grasses, pulse and roots. As the root and green crops will be removed from the land and, in fact, nearly all the cereals, pulse, and grass also, the manure at the stalls, stables, and pig pens must be carefully preserved. At the same time purchased manures will be required as back carriage after delivery of all articles sold into towns, except dairy produce, such as milk and butter.

Our rotation may be termed a system of combined farming for corn, dairy, and vegetable produce. The first course will be of Wheat 100 acres, the preparation for which will be better and fully described in the fourth course. We have, therefore, only to observe that none will be sown without the land being in what the farmer calls a correct or advantageous preparation, well manured, either by yard or town dung, or artificial manures. The second course of 100 acres will be prepared immediately after harvest by the autumn fallowing of 40 acres of the foulest land. The seeding of 60 acres of the cleanest land to be as follows:—15 acres of the Giant or St. John's Day Rye, 20 acres of Trifolium of the early and late varieties, 20 acres of the early and late winter Vetches, and followed by root crops seeded in the spring, 20 acres of Mangolds after Rye manured with dung ploughed in, and artificial manures applied by the drill at the time of seeding, 20 acres of Carrots (to follow Trifolium), the White Intermediate being sown first, and the Red Intermediate variety to be drilled last, the seeding of the Carrots to be concluded by the 10th of June. Our practice has always proved most successful when the seed has been drilled at 18 inches between the rows, from the 1st of May up to the 10th of June, as at that time of year the seed will, as a rule, germinate immediately, and very few weeds will appear after a green crop once ploughed, until the young Carrot plants are forward enough to be both horse and hand-hoed. After the Vetches the Hybrid Scotch Green Round will be seeded on the land first cleared, and the remainder to be seeded with the Red Mammoth or Greystone variety of Turnips, drilled after once ploughing. Both the Carrots and Turnips should be drilled with a full dressing of bone superphosphate and Peruvian guano. In referring to the 40 acres autumn fallowed in this course this should be cropped after a good dressing of dung ploughed in, with the earliest sorts of Cabbage, planted in the autumn to the extent of 20 acres, and the remaining 20 acres in the spring; 10 acres should be planted with Champion Drumhead cattle Cabbage, and 10 acres of Early Broccoli. These latter, besides having the dung ploughed in, should have $1\frac{1}{2}$ cwt. of nitrate of soda applied at the first horse-hoeing between the rows. The third course will be 100 acres of Lent corn. Nearly all the root crops will have been removed by the 1st of March, when 50 acres may be sown with early white Oats, Canadian, Lincoln, or Poland varieties being the best, as they will each be ready to harvest before the Wheat; the other 50 acres may be seeded at a later date with White Waterloo or Black Tartarian Oats, and Barley mixed as drege corn. Clover seeds on 50 acres to be seeded in the drege corn, the mixture being Red Clover, Alsike, and foreign seed of Giant Saintfoin. The early Oats we have

sometimes followed with stubble Turnips or in part with the Dwarf Savoy Cabbage planted directly the Oats are cut, a portion being done between the shocks; this may extend to 25 acres, as they will either or both come off in good time to be followed by tall Rape and summer Vetches mixed. The other 25 acres, after the early white Oats, may be tilled and manured for the early varieties of Potatoes or Peas for supplying green to the market in towns; after which, and the haulm harvested carefully, this portion may be sown with early white Pomeranian Turnips, to be pulled off for sale or for feeding cattle. This completes the fourth course in the rotation. Thus it will be seen that all the crops advised may easily be got off in time for the Wheat crop; the Clover having been cut twice for hay or soiling horses, cattle, &c., may be dunged early, and ploughed and pressed early, giving this light soil time to consolidate before drilling the Wheat. The portion of the fourth lain last cleared, such as the white Turnips, Rape, and Vetches, may be dunged, and ploughed, and last sown after the autumn rains have made the land heavy. We shall next refer to gravel and stone brash soil rotations.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This may still be supplemented by steam power in ploughing and pressing Clover leas, &c., for Wheat seeding, and it is extremely important, because some horses will be required in various work. Drawing out manure will still be going on in some fields in which this work may have been unavoidably delayed. The carting and storing of Mangolds and other root crops must be done, the sooner the better. Swedish Turnips may also be carted and stored at the homestead, near to where they will be required for the feeding of cattle, pigs, &c. Carrots may now be taken up, especially the intermediate sorts, which have short roots and easily removed, and carted away to the farm premises, and placed near to the stables and other sheds, where they will be required for feeding horses and other animals. They are very nutritious for weaned colts, and there is no vegetable equal to them for raising young growing horses into a large size and excellent condition. The Potato crop will require to be ploughed out with the lifting plough. They may then be sorted in the field by women and carted away for various purposes—those tubers touched with disease for the dairy cows and pigs, those for seed stored by themselves, and those for sale stored conveniently for taking to market when required. There is also plenty of work for the odd horse or mule in carting straw to the cattle boxes, stables, and other pens for pigs. Hay, too, will be required for the cart horses, and also Carrots. This must also be done by the odd horse and man, who may and should be specially employed for such work, for we deprecate the plan and practice of the teamsmen being employed to fetch provender of any kind for the horses under their charge, as it is too often made the excuse, particularly in short days, for reducing the period of labour in the field. Drilling Wheat will be going on; and upon strong land especially, where the weeds usually injure the corn in the spring, it will be necessary to drill at 10 to 12 inches between the rows, as in case the weeds prevail in spring, or when the Wheat plants look yellow and sickly, if the space is not wide enough between the rows effectual horse-hoeing cannot be accomplished. It is no use to expect the work to be done by hand-hoeing. The right season for hoeing is but short, nor is hand-hoeing so effectual for moving the ground as well as killing the weeds as the horse hoe, and when the Wheat plant is unhealthy it will never bring a good-sized ear unless the surface soil is stirred round the plant to give it fresh life and vigour.

Hand Labour.—Some of the men may be employed with the threshing machine, for about this time some Wheat and Barley will be required for sale, and straw for daily use. Drege corn, too, will be required for the horses, and seed Wheat for sowing, as a considerable portion may be grown on the home farm, although we may require to purchase for seed some new variety, newly selected, or pedigree grain. Those crops of roots which like Swedish Turnips may be pitted in the field, or even Mangolds if required for sheep in the spring, may be stored and covered by men assisted by the women; or a man his wife and family may be employed and paid by the acre for the work. Carrots also may be heaped in the field and fetched away by the odd horse or horses as required for use, and this saves horse labour at this busy period of the year. The plan of storing Carrots and Swedes in the field is of the greatest importance, not only because they would be seriously injured by game and rabbits, wood pigeons, &c., during the winter if left in the land during frosty weather, but also because the roots cannot be frozen without losing much of their nutrition. The storing, heaping, or pitting by the acre is a matter of hand labour only, and as such we think it pays well for doing.

On the parklands and pastures in nearly every district Oak trees are found, and as the crop of acorns is this year very great it is frequently found when the cattle are allowed to eat them that they become seriously injured. We have known in some seasons when they have eaten them to excess it has resulted in the death of some of the animals, and of great damage to the health and condition of others. When those which have died and undergone a post-mortem examination, large undigested masses of the acorns have been found

inside the stomach, showing they could not ruminate. We have thought it best to have the acorns picked up by women and children, who receive 1s. 3d. per bushel for the work. They answer a good purpose for feeding breeding sows and store pigs, also for horses in small quantities crushed, because the fruit of the Oak possesses a large amount of flesh-forming and heat-producing properties.

On the heavy Wheat lands, as fast as the drilling or seeding has been completed, the land and water furrows should be struck out with the plough immediately, the men following with spades and shovels to clear them out, with sufficient fall for the water to escape quickly. All kinds and ages of cattle and horses should now receive roots as the days shorten, and come into the yards and courts at night to receive some dry fodder at the same time, unless in a few cases where grass has been specially reserved upon dry land for autumn feeding. Sheep folded on Turnips and Cabbage, &c., should now have hay and also some cake if they are being fed for the butcher; if for stock only a little hay will be sufficient, in addition to the roots, to keep them healthy. The horned Dorset and Somerset ewes just arrived in the home counties appear in good health and condition, except in certain instances where they have been neglected, in which case some flocks have the fluke rot. These have been sold at low prices.

ADVANTAGES OF A HOME FARM.—No. 4.

MANURES FOR ARABLE LAND.

QUITE recently in the *Times* Mr. Lawes published a statement of a series of trials of Wheat grown upon certain plots of land to which different kinds of manure had been applied, and of one plot from which a crop of Wheat had been taken annually for a long time—I think it was thirty or thirty-five years—without having had any manure whatever; but now, he observes, it shows evident signs of exhaustion. What wonderful land must that be at Rothamstead! If I were to attempt to grow Wheat upon the same plot for only a couple of years without manure there would hardly be enough straw and grain the second year to pay for labour. Yet this soil that is so thin and so soon exhausted, in 1878 yielded the extraordinary crop of forty-four bushels of Wheat per acre, and the straw was upwards of 5 feet high! I have still a bunch of it which measures 5 feet 6 inches in length. This crop followed winter Tares, which were used as green food for horses, and the land was cleared in June, and broken up at once for a summer fallow. After the first ploughing, manure of excellent quality from the cow-yard was put upon it at about the same rate as the grass land and ploughed in, and afterwards the land was occasionally stirred and broken up, so that by autumn the manure was mingled with the soil and incorporated with it thoroughly. In October a dressing of quicklime fresh from the kiln was given, the field once more ploughed, and the Wheat sown. The result was so favourable as to raise hopes of similar good results in the following year from another piece of fallow—not, I am sorry to say, to be realised, for the cold stormy dripping summer of 1879 proved very disastrous to the Wheat. The results of such an ungenial season cannot, however, have any bearing upon that of ordinary years, and there can be no question that fallow land, well manured and frequently stirred, yields a crop of Wheat and straw that well repays the extra labour bestowed upon its culture.

Field Potatoes usually follow Oats; the method of culture is simple but efficient. As soon as possible after the corn is carried to the rick-yard, the land, if clean, is ploughed and left for the winter. This year the stubbles were very foul, and the broadshare, horse hoe, and harrows had to be used to clear off the weeds before ploughing. The unusual quantity of weeds is but one of the many lingering traces of the baneful effects of the wet summer of 1879. The stubble weeds showed clearly that much seed had again been shed this year, and therefore after they were cleared off and burnt, the surface was stirred sufficiently with the horse hoe to induce the newly fallen seed to vegetate, which it soon did, so that when the ploughing was done the surface was quite green with seedling weeds, then most easily got rid of by ploughing in, but which without such timely culture might not have sprung up till next year, and then proved very troublesome. In February or early in March farmyard manure is carted and spread upon the ploughed land, and it is immediately ploughed a second time, then left for a week or two till it is sufficiently dry to be thoroughly stirred by a heavy horse hoe of local manufacture, partaking very much of the character of a cultivator, for it stirs the surface soil just as efficiently as a Coleman's cultivator does the subsoil. When by this means and exposure to the air the soil is in a light friable condition, the drills are made with a single-horse plough 30 inches apart, artificial manure scattered along each drill, and the Potatoes planted.

All root crops are exhaustive to the soil, and for this reason an extra quantity of manure is generally used in root culture. It is applied in a variety of ways, for many of which no better reason than local customs can be advanced, yet in outlying country districts such customs are kept to with singular persistence. Mangold Wurtzel, for instance, is generally sown upon a flat-topped ridge, formed by

first ploughing deep drills, which are half filled with manure and then filled with soil by ploughing between them; this leaves sharp ridges, which are then flattened by a light roller, and the seed sown along the middle of each ridge. In wet heavy soils this plan may tend to ensure a good plant, but in light soils it is unnecessary. Spread a liberal dressing of rich farmyard manure upon the surface, plough it in, stir the land well with a cultivator to blend the manure well with it, and make a good seed bed, then sow plenty of seed in drills 2 feet apart, just as you do for Carrots and Turnips, thin the seedlings early, keep down weeds, and stir the soil often between the rows. That this plan is a good one I have clear and striking proof this year in a full crop of such excellent roots of Giant Long Red Mangold, that I had four of them washed and weighed to-day, October 8th. The heaviest root weighed 17½ lbs., and the four roots together weighed 65 lbs., which gives a mean of about 16 lbs. a root, or about 77 tons per acre. The roots weighed were picked, but there are plenty more as large, and the entire crop is so good that the weight would probably be nearly 60 tons per acre.—EDWARD LUCKHURST.

BUTTER MAKING.

JOHN STEWART of Iowa has made a fame as a butter-maker that is not confined to this continent. In 1873-4-5 he took away the highest honours at the great St. Louis fairs; in 1876 he carried off the gold medal at the Centennial Exhibition; he was equally fortunate at the Royal Agricultural Exhibition in London, England, in 1879; in 1878 he took the first premium on October butter, and at the same fair in 1872 he took twelve premiums. Recollect, too, that this butter was made in Iowa.

Mr. Stewart's method in making butter is contained in a pamphlet issued by him in the interest of making good butter. He begins with a treatment of the cow. She must have a warm dry stable, and be fed liberally with ground corn, Oats and Barley mixed in equal parts. He discards the use of Turnips and oil cake, but emphasises the necessity of plenty of good hay and water. He discourages the use of wooden pails, employing tin, which must be thoroughly scalded before using; the receiving can is set in cool water. If a cellar is used for setting the milk he would permit nothing else in it, keep it well whitewashed, and attend to the ventilation. In his opinion milk is injured if chilled too much in cold weather, or if it reaches too high a temperature in warm weather. When the weather is warm he surrounds the pans with water as deep as the milk; milk will keep sweet thirty-six hours at a temperature of 62° to 65°. He does not permit cream to thicken in warm weather before it is taken off; skims sometimes in twenty-four hours, and again at forty-eight hours, according to the condition of the cream; does not keep cream longer than forty-eight hours before churning; churns every day, if possible, at a temperature of 58° to 60° in summer, and 62° to 65° in winter; draws the butter-milk before the butter forms in mass, and washes the butter with clear cold water, or brine, which is better, until the liquid runs clear, then gathers and works it thoroughly, using 1 oz. of salt to 1 lb. of butter; sets it away for twenty-four hours, and works all the milk out, giving a dash of cold water occasionally.

In packing he uses the best quality of tubs, soaking them twenty-four hours before packing; packs closely to sides and bottom, and fills the tub level full; puts on a clean bleached muslin cloth saturated with brine, and a layer of wet salt over that, puts on the cover, fastens with three strips of twine, and the butter is ready for shipment. Butter made in this way always brings a good price.—(*Prairie Farmer.*)

FORTHCOMING POULTRY SHOWS.

CONTINUING our reference to the Shows now pending from page 361, we find that on October 26th opens the great four-days Poultry and Pigeon Show in connection with the Dairy Show at the Agricultural Hall. The entries have already closed, and we have commented on the schedule, but may again call attention to the fact that the classification and prizes for Dorkings are specially good, and so that the show of that useful old English breed is sure to be fine. Farmers who come up to see horned stock and its produce should look at profitable poultry and try to improve their home breed.

For the 27th and 28th—unfortunately two of the Dairy Show days—is fixed the Oxford Show, which is always an excellent one all round. We believe that no Show has done more good locally in drawing attention to poultry breeding, and in converting simply poultry-keepers into careful breeders. In the following week Bath, which used to hold its Show in September, offers a tempting schedule to west-country fanciers, and, indeed, to many others, for Bath is very accessible from many directions. Entries close on

the 18th of this month, and the office of the Society is 42, Milsom Street, Bath. It is long since a show was held in Berkshire, and at last one is promised at Windsor on November 10th and 11th. The schedule is a very fair one for a beginning; the Secretary, Mr. W. Cleave, Sheet Street, Windsor. Let us hope that the manager of the Royal poultry yards may be authorised to make some purchases at it. When last we saw that establishment its inmates by no means were such as they might be, or worthy of their fine abode.

The following week is the great Derby week of the poultry fancy, when the Crystal Palace Show is held, to which all fanciers who can leave their homes and occupations flock. The schedule is not in our hands yet, but let us hope that it may be liberal, and that the sums offered in prizes may be in some larger proportion than hitherto to the enormous sums received for entry fees, which last year came up to more than £1400!

The week following the Crystal Palace is that of the Oakham and Tredegar Shows. The former has long been a well-managed and popular agricultural meeting for the midland counties, with good prizes. Great advantages are offered to exhibitors in the way of reduced entry fees who become members of the Society, giving a small annual subscription. The Secretary is Mr. James Wellington, Oakham.

The Tredegar Show will be at Newport, Monmouth, on November 23rd and 24th. The classification and prizes for poultry are good; for Pigeons there are only nine classes. The Secretary is Mr. F. J. Justice, Tredegar Estates Office, Newport, Mon.

On Saturday, November 27th, begins the Birmingham Show, the schedule of which is referred to more fully in another article.—C.

WASHING FOWLS.

Few things connected with poultry management seem more difficult to accomplish properly than washing fowls. Previous to my having any personal experience in the matter I read articles on the subject, and the more I read the worse I thought it must be to do. Experience has since taught me that washing is a much more simple process than many would imagine, and much that has been written respecting it has magnified the whole affair a great deal more than there is the slightest occasion for. There is no secret in it; the whole is as simple as washing a piece of calico, care only must be observed, and only a fair amount of this is needed. Game and other hard-feathered fowls should not be washed, and it is seldom that black birds of any kind require it unless they are very dirty before being exhibited. Pure white fowls, however, generally want washing before they can be shown, and those of a light colour are usually much improved by washing. Sometimes fowls which should be clean are shown unwashed and dirty, and were I about to buy anything of the kind I should be a little cautious, as it is just possible dirt may be left on to hide defects in colour. Those with fowls of a pure colour are always glad enough to wash them well before showing, as the better they are washed the greater is their chance in the show pen. Buff and White Cochins are about the worst to manage so far as size is concerned; but for particular washing no kind is more difficult to do well than our favourite Sultans with their large crests, muffs under their chin, and so much feather about their legs and feet, all requiring careful handling; but they can be washed easily enough, too, as some of ours, although black and dusty before washing, invariably turn out as white as snow.

In preparing to wash fowls two ordinary-sized tubs should be prepared, one to wash in, the other to rinse them out. Two or three gallons of water should then be placed in a sauepan, adding to every gallon about 1 oz. of white soap, and to the whole a piece of washing soda about the size of a filbert. Boil all together and empty into one of the tubs. Add cold water to lower the temperature to about 110°. The bird must then be taken and placed in the water, sponging it well over so as to wet the feathers, afterwards taking a small handbrush and brush the whole of the feathers down repeatedly. Always brush down with the feathers, not against them. It is easier done when one person holds the bird and another uses the brush. There must be no surface cleaning only—the very foundation must be reached. Do not be afraid to brush hard, it is the only way to render them clean. Sometimes a tail, crest, breast, or wing may want rubbing or brushing for upwards of five minutes before it is thoroughly clean; but clean it must be made, or washing had better not be attempted, as of all the miserable-looking fowls none can be worse than a badly washed one.

In finishing with the brush have a quantity of water in the other tub heated to about 70°, and take the bird out of the soapy water and swill it well in this, as no soap must be left amongst the feathers, or it will make them adhere together. After taking

it out of the water it may be placed on anything clean underfoot, and the feathers gently rubbed downwards with a sponge. This takes much of the water out, but it must be dried thoroughly in a wicker basket before a fire. It should be placed here as soon as it is washed, and not removed until it is dry. When washed in the evening and placed before the fire all night the feathers will be found to be fairly dry in the morning. Fowls should always be washed two or three days before they are sent off to a show. When done only the day before or so some accident may occur, and there is no time to give them another dip. Lately one of our birds was covered with soot blowing down the chimney when he was drying overnight, but we had plenty of time to change his colour again before sending him to the show he was being prepared for.

Some say the feathers ought to be dressed during the time they are drying. I never do anything of the kind, nor find it necessary to do so, as every feather comes into its proper place as it becomes dry. From the time they came out of the tub until they are sent to the shows we dress nothing at the feathers, not even the "fluff" in Cochins, so that this must not be counted in as one of the difficulties to be overcome in washing fowls. After washing they must not be exposed too soon to draughts, or they may catch cold, but ordinary care will always prevent this.—J. MUIR, *Margam*.

THE ALEXANDRA PALACE BIRD SHOW.

THE autumn Show of Canaries and British and Foreign cage birds, which terminated at the Alexandra Palace on the 13th inst., was one of considerable interest to ornithologists and the general public. There were about six hundred entries of birds spread over some seventy classes, and the arrangements made by Mr. F. W. Wilson, who had the management, were such as to afford every facility for careful inspection. The birds in the Canary classes were in such excellence of plumage as to somewhat surprise us, and the honours for the birds in the high-coloured Clear Norwich classes were spiritedly contended for between Messrs. Mackley of Norwich, who gained first prizes in Clear Yellows and Clear Buffs, and Mr. Yallop of Cossey, near Norwich, the latter exhibitor scoring second in each class with very showy birds. Even-marked Norwich, although few in number, were good, and there were many Norwich birds heavily crested, besides two or three fairly moulted London fancies. Lizards were not so good in distinctness of spangles and other qualifications as on former occasions, but the mules of the Goldfinch and Linnet crosses with the Canary were first-class.

Conspicuous amongst the hybrids were those exhibited by Mr. Tom Lovell and Mr. Sleep, the former exhibiting a charming specimen of the Bullfinch and Goldfinch cross, and the latter a bird of the Greenfinch and Goldfinch cross, both of which took prizes. British and migratory birds were (excepting in the Blackbird class) amply represented, and we noticed amid others a Nightingale, Blackcaps, Willow Wrens, &c.

Foreign birds formed not only an imposing portion of the Exhibition, but were remarkable not only as regards the pair of Grass Parrakeets, which were of a different plumage than we have ever before witnessed owing to them not possessing that sweetly undulating pencilling so characteristic of the breed, and still more remarkable was the colour, which more approached that of a Canary. The birds were exhibited by Mr. Van der Snickt, and were justly awarded a special first prize. Another noted specimen was an Australian Piping Crow named "Maggie," marked like a Magpie, the playful tricks of which, bursts of laughter and imitations of vocal sounds, "drew down the house."

Considerable attention was devoted to the Widow or Whydah birds, especially that entered by Mr. Bowen, which was very perfect in plumage, general condition, and finely-developed threads in its tail. There were also many fine Parrots, Parrakeets, Cockatoos, Weaver Birds, Virginian Nightingales, a Blue Thrush, and others as an auctioneer would remark "far too numerous to particularise." Amongst the principal exhibitors of foreign birds were Mr. W. Satchell, of Hampshire; Mr. J. Drake, of the Aviary, Ipswich; Mr. Bowen, of Kensington; Mr. Groom, of Camden Town; Mr. Barrs, of Derby, &c. The birds were judged by Mr. Harrison Weir (for foreign and British), and Mr. G. J. Barnesby and Mr. E. Bemrose (Canaries and Mules).

[This report was not received in time for insertion last week.]

THE BIRMINGHAM CATTLE AND POULTRY SHOW.

It has for some years been the custom to offer a £10 prize for the best dark Brahma in the Show, and another of the same amount for the best light Brahma. The Poultry Committee have this year decided to give four prizes of £5 instead of two at £10, one going to the coeks and cockerels, and the other to the hens and pullets of each variety.

The prizes for Dorkings remain as before, with the exceptions that the class for "Cuckoo, Blue or any other colour," is withdrawn in consequence of the small number of entries which have hitherto

been made in it; and classes for "any other colour" have been substituted for those for Whites.

The cups in the Cochin classes have been dealt with in the same manner as those for Brahmas, four of £5 being offered, one for Buff cocks or cockerels, one for Partridge cocks or cockerels, one for Buff hens or pullets, and one for Partridge hens or pullets; while one each of the value of £4 are offered between White and Black cocks and cockerels, and between White and Black hens and pullets.

The Langshans, which were shown in great force last year, are divided into four classes instead of two as heretofore, with prizes of £4, £2, £1 10s., and £1 each for cocks, cockerels, hens, and pullets, the second prize in each case being provided by a few breeders.

Instead of there being one class for Andalusians, with prizes for a cock and hen of any age, there are now two classes, with prizes for cocks or cockerels, and for hens or pullets.

The classes for black Game, and also for Piles, have been withdrawn, and these kinds must in future be shown with those coming under the distinction of "any other variety." Messrs. Billing, Son, and Co. continue their prize of £3 3s. for the best Game cock in the show; and Spratt's Patent Food Company offer a prize of £5 5s. for the best Black-breasted Red cock or cockerel; but the prizes which will be most sought after, and which will, doubtless, attract a large number of entries, are two challenge cups, one of the value of £50 for the best Black-breasted Red cockerel, and the other of £30 for the best Black-breasted Red pullet, which are offered by a few fanciers, and which must be won by the same exhibitor three years out of seven before they become his absolute property.

Two cups of the value of £3 each are offered for Black Hamburgs, one for cocks or cockerels, and the other for hens or pullets; and cups of the same value between Golden-pencilled and Silver-pencilled cocks, Golden-spangled and Silver-spangled cocks, Golden-pencilled and Silver-pencilled hens, and Golden-spangled and Silver-spangled hens.

The classes for Game Bantams have been altered. There are now prizes for Black-breasted or other Red cocks, cocks of any other variety, Black-breasted or other Red hens, hens of any other variety; and for cocks and hens of any other variety.

A number of changes have been made in the Pigeon department, the first important one being a class for badge and another for saddle Tumblers, instead of these two varieties having to compete with each other. There are now three classes for Magpies instead of one—viz., for Blacks, Reds, and any other colour; four instead of two for Jacobins, for Blacks, Reds, Yellows, and any other colour; and three instead of two for Turbits, for Red or Yellow, Blue or Silver, and any other colour. The class for Blue Chequered cock Dragoons, and also that for Red or Yellow Dragoons, have been withdrawn, so that in future these varieties must compete with those of "any other colour." The prizes for Antwerps have been increased, an additional one of £1 10s. being offered for Silver Duns of any age, one of £1 10s. and another of 10s. for Silver Dun hens, and one of £1 for the best Red Chequered bred in 1880.

Several minor alterations will be seen in the prize lists, which, together with certificates of entry, may be had from Mr. J. B. Lythall, Bingley Hall, Birmingham. The entries close on Monday the 1st of November, but post entries can be made in this department up to the following Saturday upon payment of double fees.

The following gentlemen have consented to act as Judges:—*Poultry*—Mr. James Dixon, Mr. Leno, Mr. W. R. Lane, Mr. J. H. Smith, and Mr. R. Teebay. *Pigeons*—Mr. T. J. Charlton, Mr. H. Child, and Mr. F. Esquilant.—(*Midland Counties Herald*.)

VARIETIES.

HIGHLAND CATTLE.—An agricultural writer observes that the West Highland breed has occupied a district in the Highlands of Scotland anterior to the records of history and tradition, and have acquired characters suited to a country of heaths and mountains. These have been produced in the highest state of perfection in Argyshire and the adjoining islands. The cows, like all mountainous breeds, give but a small quantity of milk, but of a superior quality. These cattle are best and most profitable when fattened at an early age. They will live and thrive on the coarsest pastures, and when turned upon good pastures they will gain a third of their original weight in six months. They lay their flesh and fat on the best parts, and when fat their beef is fine in the grain, highly flavoured, and so well mixed or mottled that it commands the highest price in every market. This breed is, in fact, strictly a beef animal and nothing more.

— **AMERICAN WHEAT FOR ENGLAND.**—The American papers remark that the Royal Agricultural Commissioners, Messrs. Reed and Pell, have made a mistake in estimating the average yield of Wheat in America at 13 bushels per acre, and observe that from the districts that are likely to compete with England, the averages are much higher, —namely, over 20 bushels. The *Cultivator* observes that American Wheat is produced at an average cost, all over the United States, of 20s. per quarter, or 62½ cents per bushel; allowing 10s. per quarter for cost of transit to Liverpool (and this is a liberal allowance), it concludes that American producers have the advantage of quite a margin of profit, equal to about 42 cents. per bushel. Independent of all statements, however, grain can be taken from Chicago to Liverpool for 22 cents a bushel at a profit. Therefore American Wheat can be sold in Liverpool in enormous quantities at \$1.20 per bushel with a profit to the producers, carriers, and dealers.

— **DESTRUCTIVE SNOWSTORM.**—A recent telegram from Lisbon states a terrific snowstorm occurred in the province of Buenos Ayres on the 18th inst., in which 700,000 cows, 500,000 sheep, and 250,000 horses are estimated to have perished. The storm raged with more or less violence during three days and three nights, and was the greatest ever known there.

— **AGRICULTURAL PROSPECTS.**—The fine weather of the past week has made farmers too busy to write reports, and our advices this week are therefore fewer than usual. The ground turns up exceedingly well, and Wheat-sowing is going on very favourably. Mangolds are now being lifted, and if the weather keeps dry a very useful crop will be got together. It must be borne in mind, however, that the lateness of the season has prevented Mangold from maturing in all the colder soils, and a large proportion of the crop is not now any nearer maturity than it usually is at the middle of September. If growth has ceased the sooner they are up the better; if not, and if time present is considered safer than time to come, they will require a longer time than usual to ripen in the pit or stock. Swedes are mildewed in places, but on the whole are an excellent crop. The early frosts have touched the leaves of the common Turnips, but there is no damage done yet, and root crops, Cabbages, and Kohl Rabi will turn off an unusual amount of keep this season. The trade for store cattle has brightened a little, and but very little, the scarcity of cash being far greater than that of keep.—(*Mark Lane Express*.)

— **THE ELECTRIC LIGHT AND INSECTS.**—A suggestion was made at a recent exhibition of agriculture and insectology at Paris, that the electric light would form an excellent trap for moths and other night-flying insects. That the suggestion was a good one is proved by the fact that some electric lights on the Boulevards which were near coffee stalls have been extinguished, for they attracted a perfect plague of moths and other insects, which fell in shoals on the shoulders of the customers, and into their cups. A similar result, says a daily contemporary, was experienced recently at Charing Cross—an electric light on a roof attracting innumerable flies and moths, some of them no doubt from considerable distances, as they are rarely seen near town. Enterprising entomologists may take a hint from these facts.

— **THE HONEY HARVEST.**—The crop of honey throughout the home counties is, we understand, very abundant this year. Small farmers and cottagers in many districts have begun to study the subject of bee-keeping, and are introducing improvements in the construction of the hives, which have proved successful even beyond their most sanguine expectations. We have heard of some swarms producing over 100 lbs. of the popular sweet this season, which is a handsome return for the outlay required. The large imports of comb honey coming from America this year is an indication that the industrious bees have had a good time of it. Honey from "over the water," in small combs, is just now selling in Glasgow at something under 6d. per lb., and will no doubt command a large and ready sale through the medium of the family grocers and confectioners, as it is much sought after in the winter months as a curative and preventive of colds as well as a popular adjunct to the tea-table.—(*Grocer*.)

— **THE AMERICAN AND CANADIAN FOOD SUPPLY.**—There was a large increase in the number of live stock and the quantity of fresh

meat landed at Liverpool last week from the United States and Canada. The total arrivals were 2738 cattle, 1223 sheep, 1072 pigs, 5798 quarters of beef, 355 carcasses of mutton, and 125 dead pigs.]

THE ROUTINE OF BEE MANAGEMENT.

FEEDING bees at some seasons has of late years been necessary and important. Those who have attended properly to this work have been the most successful and have had but few, if any, losses by death from starvation. If any of the readers of the Journal have not given their bees enough to keep them till March, we advise them to do so as soon as possible. Autumn feeding in my opinion should be completed in September for more than one reason. The quieter bees are after September ends the better. The quieter they are the less honey they consume. Feeding excites bees to fly abroad, and in doing so many hives may be lost during cold or inclement weather, and feeding often excites the bees to set eggs widely in mild autumn weather. Cold weather may come and cause the bees to draw themselves within the lines or limits of their brood, and thus leave it to be chilled to death. Foul brood results, and ultimately the ruin of the bees, from feeding at untimely seasons. Hives this autumn are, generally speaking, strong in bees, which have during the last few weeks consumed much of their winter stores. In mild winters and open weather the bees in very strong hives require or eat from 12 to 15 lbs. of stores from the middle of September till the middle of March. The bees of small and weak hives will not consume half so much. Feeding now should be completed speedily, for slow continuous feeding may cause the evils which have been indicated above. While autumnal feeding is going on the doors of hives should be contracted, in order to prevent robber bees from entering and extracting the honey.

After feeding has been completed, the boards of hives should be well cleaned. The wax moth, next to foul brood, is a destructive pest in apiaries. It has been said that Langstroth recommended wooden hives because the wax moth could find no resting place in them; but it is now well known that the wax moth is no respecter of hives, and breeds as fast in wooden as in straw hives. The scales of wax that drop on the boards of hives are gathered together and form nests for the maggots of the moth. If either earthenware or iron vessels used for feeding purposes be left for a short time on the centres of the floor boards, young moths will soon be found beneath them as well as round the edges of the hives. The maggots of the moth feed on their nests—viz., the fallen or lost scales of wax, till they are able to crawl to and lay hold of the combs of the hives. Amongst the combs the maggots make sad havoc, for they live upon pure wax and consume much of it. Unfortunately the bees tolerate and permit the presence of the wax moth in their hives, and seem not to know that it is a destructive enemy living on their produce. Hives in summer should be often lifted off the boards, in order to destroy all the maggots of the moth before they are able to go amongst the combs. At the present season all the floorboards of hives should be well scraped and cleaned; and if at all wet from rain or the absorbed moisture of the hives it is important that they should be well dried.

Covering hives well and warmly for the winter months is the finishing work of the apiary, and though last in time is not least in importance. My preaching on this point is better than my practice, for my hives are never sufficiently covered in winter and spring. A quantity of material of some kind is necessary to cover sixty large hives. Bees are tiny fragile creatures and require attention in cold weather. Both cold and wet are hurtful to them. Hives should have good warm under-coverings, and their outer coverings should be waterproof. Not a drop of rain should be allowed to touch either hives or boards after September, for if either hives or boards are damp in winter frost may convert the moisture into ice. Hives in bee houses are easily kept dry and warm in winter, and hence my prejudices against bee houses grow less and less. The protection of a good warm covering should be given to hives either with or without bee houses, and such covering should not be removed altogether from hives till the end of April. In recommending warm covering for hives in winter, I once unwisely said that a woolly sheepskin turned inside out would be a model cover for a bee hive in winter. In doing so my aim was to convey the idea of warmth, though I knew that the leather of the skin, or the skin itself, would prevent the moisture of the hive from escaping. And this seeming blunder of mine was pointed out by an advanced bee-keeper. All covers of hives should be porous enough to let the moisture of hives pass through; otherwise it would be condensed, keep the hives damp, and do harm. Warmth, dryness, and ventilation should all be considered in covering hives for winter and spring.—A. PETTIGREW.

OUR LETTER BOX.

Keeping Fowls—Leg Weakness (*J. W. S.*).—Your questions cover a great deal of ground, and to answer them all fully would be to write a small treatise on poultry. The crosses which you have are very bad. First crosses are for certain purposes good, but to cross crossbred fowls again with others crossbred is a bad plan. Your stock, too, is evidently of a delicate strain, and we advise you entirely to get rid of it, except the Game cock and Brahma hens. In the place of your other hens you might well obtain some strong Dorking pullets. The first cross from these and the Game cock should be excellent for all purposes. The situation of your poultry house and run appears very good, but we often find that birds reared on very rank herbage seem to lack stamina, and are often weak in the legs. Put plenty of grit and mortar rubbish about their place. The staggering probably indicates liver complaint, which is incurable, and the sneezing general weakness. Your stock being what it is we do not think it worth a long system of physic. Before, however, introducing fresh birds disinfect the house thoroughly, and lime the grass about it thickly.

Feeding Poultry (*Mrs. Lucas*).—Our theory has always been the same, and it has stood the test of many years of breeding. It is during the period of growth to feed as well as possible, in order to supply the means of increase. Although in most instances pullets cease to grow when they begin to lay; but the furnishing of plumage and the filling-out of frame then begins, and although growth ceases there is a constant increase of weight. Many amateurs consider spare feeding that which we should call luxurious. Scantily fed chickens cannot make large hens.

Fowls not Laying (*F. T. Berks*).—Hens will not regularly lay in the winter; only pullets can be depended upon to do so. You should therefore keep some early pullets every year to provide you with eggs in the winter. As a rule fowls do not like Oats. You must feed differently. Have your Oats ground fine—so fine that the meal will make dough, like flour. You must take nothing from it, but grind husk and all. Give them some whole Barley for a change, and once a week a few boiled Potatoes.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51°32'40" N.; Long. 0°8'0" W.; Altitude, 111 feet.

DATE.		9 A.M.				IN THE DAY.				Rain.
1880. Oct.	Barometer at 32 ^s and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Snn. 10	29.915	51.2	51.0	N.W.	53.2	53.7	50.2	64.2	50.2	0.113
Mon. 11	30.275	50.2	48.5	N.E.	53.0	60.6	45.1	110.6	42.3	0.074
Tues. 12	30.168	49.9	40.7	N.	52.3	54.9	43.6	101.3	38.3	0.034
Wed. 13	30.255	50.9	47.9	N.E.	51.4	57.5	43.3	102.0	37.6	—
Thurs. 14	30.405	48.1	44.4	N.N.E.	51.4	53.5	45.1	87.6	44.3	—
Friday 15	30.312	49.8	40.3	N.E.	50.0	53.3	33.9	70.0	29.9	—
Satur. 16	30.081	50.3	49.0	N.E.	49.2	54.0	40.7	60.2	36.7	—
Means.	30.202	48.8	46.0		51.5	55.4	43.1	85.1	39.9	0.221

REMARKS.

10th.—Rain more or less all day.
11th.—Very fine morning, with bright sunshine; afternoon cloudy, heavy shower 4 P.M.; fine evening.
12th.—Fine bright morning; rain at noon till 3 P.M., fine afterwards, and cold.
13th.—Fine, bright, and cool.
14th.—Overcast first part of morning; fine with bright sunshine after 11 A.M.; fog in evening.
15th.—Foggy morning; cold overcast day.
16th.—Early morning fine; slight rain in forenoon; afternoon and evening fine but dull.

A bright week on the whole, but foggy at times on the last two days. Temperature rather below the average.—G. J. SYMONS.

COVENT GARDEN MARKET.—OCTOBER 20.

PEACHES and Pines have been in request during the past week, and prices have considerably improved. Best samples of Grapes have also realised better prices, but business has been generally quiet. American Apples are now reaching us in large quantities, and making their full value.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	2	6 to 4	6		Melons	each	2	0 to 4	0	0
Apricots.....	box	0	0	0	0	Nectarines.....	dozen	0	0	0	0
Cherries.....	¼ lb.	0	0	0	0	Oranges	¼ 100	0	0	0	0
Chestnuts.....	bushel	12	0	16	0	Peaches	dozen	12	0	18	0
Figs.....	dozen	0	6	1	0	Pears, kitchen ..	dozen	0	0	0	0
Filberts.....	¼ lb.	1	6	1	8	dessert	dozen	2	0	4	0
Cobs.....	¼ lb.	1	6	1	8	Pine Apples ...	¼ lb.	2	0	4	0
Gooscherries ...	½ sieve	0	0	0	0	Plums	½ sieve	2	6	4	6
Grapes	¼ lb.	1	0	3	6	Walnuts	bushel	0	0	0	0
Lemons.....	¼ 100	12	0	18	0	ditto	¼ 100	0	0	0	0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.		
Artichokes.....	dozen	2	0	to	4	0	Mushrooms	dozen	1	0	to	1	6
Asparagus.....	bundle	0	0	0	0	0	Mustard & Cress ..	punnet	0	2	0	3	
Beans, Kidney ...	½ lb.	0	0	0	0	6	Onions	bushel	3	6	5	9	
Beet, Red.....	dozen	1	0	2	0		pickling	quart	0	0	0	0	
Broccoli	bundle	0	9	1	6		Parsley..... doz.	bunches	6	0	0	0	
Brussels Sprouts..	½ sieve	1	9	2	3		Parsnips	dozen	1	0	2	0	
Cabbage	dozen	0	6	1	0		Peas	quart	0	0	0	0	
Carrots.....	bunch	0	4	0	6		Potatoes	bushel	3	9	4	0	
Capsicums.....	½ 100	1	6	2	0		Kidney	bushel	4	0	0	6	
Cauliflowers.....	dozen	0	0	3	6		Radishes.... doz.	bunches	1	6	2	0	
Celery	bundle	1	6	2	0		Rhubarb	bundle	0	4	0	0	
Colcworths.....	doz. bunches	2	0	4	0		Salsafy.....	bundle	1	0	0	0	
Cucumbers.....	each	0	4	0	6		Scorzonera	bundle	1	6	0	0	
Endive	dozen	1	0	2	0		Seakale	basket	0	0	0	0	
Fennel	bunch	0	3	0	0		Shallots	½ lb.	0	3	0	0	
Garlic	½ lb.	0	6	0	0		Spinach	bushel	3	0	0	0	
Herbs	bunch	0	2	0	0		Turnips	bunch	0	4	0	0	
Leeks.....	bunch	0	3	0	4		Vegetable Marrows	each	0	2	0	0	



28th TH
29th F
30th S
31st SUN
1st M
2nd TU
3rd W

Sale of Bulbs at Mr. Stevens' Rooms, Covent Garden.
23RD SUNDAY AFTER TRINITY.

MAKING AND FURNISHING AN OLD-FASHIONED FLOWER BORDER.

THE reaction which set in a few years ago in favour of old-fashioned border flowers has lately gathered much strength and is quite likely, in many gardens where sufficient thought may not be given to the subject, to be carried to extreme lengths, so that "bedding-out" may fairly be expected to crop up in a new form in the shape of these hardy flowers. For small gardens these, supplemented with some of the finer hardy florists' flowers, may well be left to hold their own against the ordinary bedding plants as usually managed, always provided the selection and arrangement of the plants are correct. Pelargoniums and Calceolarias have obtained a hold in many country gardens that it will be difficult to displace, nor is there any necessity for it. A lady of high rank expressed her opinion to me the other day that far too few of these were grown now-a-days. Certainly there is nothing to approach them for autumn effect when planted *en masse* with a large expanse of grass as a setting; yet for these, fine-foliaged plants, hardy florists' flowers, and the commoner hardy border plants, there is plenty of room and to spare in the larger class of gardens.

Especially grateful must those gentlemen be who have had their periodical fit of grumbling at their predecessors who removed the old occupants of borders to the rubbish heap, that they can again fill these same borders with the same kind of plants without running counter to that bedding fashion which does so much to break the backs of so many of us poor gardeners. It is to such borders I wish these remarks to apply. Bedding plants are entirely out of place, as a rule, in the positions the borders occupy—the kitchen garden, and even the poorest attempt at arrangement we have seen in these borders has been redeemed from failure by the interest the individual plants call forth; but now that effect in planting has been thoroughly mastered, and our employers have been accustomed to this effect for so many years, we must not suppose that they will tolerate any return to a system where effect does not hold a place of first importance. We can safely claim for mixed borders effect quite as good as can be procured from any other style of arrangement. Ordinary bedding plants, mixed anyhow so long as height is considered, make a border of great beauty—so great that only those who have seen them can realise what can be made out of odds and ends otherwise of no value; and so a border of well-selected

herbaceous plants supplemented with florists' flowers produce a display that cannot easily be excelled. Such borders as these have always been favourites of mine from their great value as cut flower depôts. From February or March into November we can always rely on obtaining a quantity of cut flowers from these mixed borders—flowers, too, that are always welcome, more especially in the spring months.

In commencing the formation of a border for hardy flowers a thorough preparation of the ground is of the first importance. I had occasion to make such a border seven years ago; and as the soil was of the poorest character, and had apparently never been cultivated more than a spade's depth, I cleared the worst of the subsoil out, and added a foot in depth of fresh material from an old rubbish heap, thus securing a good border about 30 inches in depth; as a reward for my labour I saw some Delphiniums in that border last summer averaging 9 to 10 feet in height. I also made and planted two borders five years ago, but had much better soil to work on, so that nothing but an ample dressing of dung was given, the borders being trenched three spits deep. With two surface dressings during that time all kinds of hardy plants have succeeded well. This autumn the borders have been emptied, and will again be trenched and a good dressing of manure worked in, when they will be expected to keep the plants in good flowering condition for a few years.

Though these borders have been under crop for five years, I would have preferred having them trenched again at the end of the third year. That is quite long enough for the majority of herbaceous plants to remain in the same position without being divided and replanted in freshened ground. As I was guided in the two cases just cited by the nature of the soil, so I advise others to be. In a poor unworked soil it is hopeless to expect the strong-growing species to do well, but provide them with a deep and good soil and they will flourish. In most gardens there are heaps of rubbish lying waste which can be made very good use of in improving the flower borders. If the soil is already in good condition I do not think it necessary to do more than trench deeply and work in a heavy dressing of manure, or manure and soil, as the work proceeds. This should be done immediately. It is also important that the plants be obtained at once. Many bulbs require planting without any delay if they are to be of much use for next year's display. Other plants should either be purchased or procured from friends at the earliest moment. A few years ago plants were to be had which could be divided at this time into, in some cases, a dozen pieces, which with a little kindness in the intervening period would have formed good plants by the following March; but nurserymen now divide the plants themselves, so that sometimes it is necessary to exercise much care to have the single plants sufficiently strong by planting-out time. In spring, when the bulbous plants have all made an appearance above ground, a further dressing of half-decayed manure should be forked-in about 6 inches in depth, and placing in it the remainder of the plants which are quite hardy, those that are tender to follow.

Different styles of arrangement are advocated. I prefer the mixed system, and will explain more about it presently. First, there is the formal laying-out of the borders in "parterres," employing large quantities of a very few kinds of plants to give effect; secondly, grouping the species together instead of scattering them about the borders; and thirdly, planting

very thickly and leaving the plants to support each other, or what would probably most likely occur, to kill each other. The latter mode may well be called the "self-supporting" system. There are also advocates of a system of carpeting the ground with dwarf growers, and as I understand it, planting larger plants thinly amongst them. A bit of mother earth or the shadow of a stake or tie are not to be tolerated as partaking of artificiality! However, everyone to his taste.

In planting an "herbaceous" border, the time when the greatest show of bloom is wanted must be always taken into account. We have borders here planted for late autumn display, in which Dahlias, Tritomas, and Sedum speciosum play the principal part; other borders are for spring and autumn display combined, and others again for general effect, and are in the best condition from the end of May to the middle of July. Again, the width of the borders must be taken into consideration. In narrow borders tall rank-growing plants would require to be kept out, and only those admitted which would make incongruity impossible. Six feet wide is about as narrow as a flower border ought to be made to produce a good effect. A width of 10 or 12 feet allows for the greatest amount of variety in time of flowering and kind of flowers that need be grown. Such a border as the latter may be divided from the vegetable quarters by espalier fruit trees, or an evergreen hedge of Yew 6 feet in height, or by a row of Sweet Peas. In any case a narrow alley is required between the divisional fence and the remainder of the border. The edging to the border may be of Box, but where this does not do well the common Gentianella, Thrift, or Daisies may be used. Festuca glauca or F. viridis, Sempervivum californicum or Saxifraga pulchella, are also useful for this purpose.

In arranging the plants for any particular season select a few of the most reliable species for the various lines to give effect at that period, filling-in the remainder with plants to bloom either at a different season or to supplement those which give character to the border. For an all-the-year-round border the main portion at the back may be left to produce the principal autumn display, having, of course, a due quantity of dwarf-growing species to give colour to the foreground as well. For a spring display the foreground must be mainly utilised for this purpose, but Crocuses, Snowdrops, Sisyrinchium grandiflorum, early-flowering Narcissi, Iris reticulata, Primroses, Aubrietias, Hepaticas, and similar plants may be freely mixed amongst the taller-growing autumn and summer-flowering plants. During the earlier summer months there is no difficulty in having the border as gay as you please; a wise selection will be the most difficult business in arranging for this season. The plants admissible to the front row should not range over 9 inches in height; graceful species, of which Sieversia triflora may be taken as a type, may, however, be admitted. Again, in the second row none lower than 9 inches in height should be admitted, and Pinks, dwarf Carnations and Picotees may be kept as the highest. Such plants as Gladioli, Sunflowers, Foxgloves, Lilies, and others of a like habit may be planted with those which are 18 inches or 2 feet lower. Such a graceful hardy plant as Euphorbia Lathyrus, hardy grasses, and any other graceful-foliage plants may also be used on the same style of arranging amongst much dwarf-growing flowering plants. I strongly recommend also the addition of such florists' flowers as the free-growing self Pansies, Alpine Auriculas, Pinks, Pyrethrums, Mimuluses, Sweet Williams, Gladioli, Roscs, Dahlias, Phloxes, Pentstemons, Antirrhinums, double Potentillas, Delphiniums, and Hollyhocks. Plants which take a time to make large clumps or masses, such as Pinks, Auriculas, and many others, also Gladioli, should be planted in groups of at least five of each variety.

Much discretion is needed in staking and tying the plants. Lilies, Lupinus polyphyllus, and others of strong habit do not require staking. Plants of the habit of the Pyrethrum look all the better without stakes too, but the great majority of the stronger-growing species require supporting; this, however, is an art which I have no doubt will be better understood before long. It is necessary that all plants requiring supports should have them at an early stage. Another item of the utmost importance is to remove all decaying flowers, and to keep wide-

spreading dwarf plants within bounds by pulling away the parts which commence encroaching on their neighbours' territory.—R. P. BROTHERSTON.

ABNORMAL GROWTH IN THE GRAPE VINE.

IN the course of Mr. Taylor's instructive remarks on "Keeping Grapes," page 365, allusion was made to the fact "that it is immaterial which end of the Vine shoot, with bunch attached, is inserted in the water." I do not remember seeing this advocated before, and it appears to have been only recently discovered by Mr. Taylor; at the same time it has long been known and practised by a gardener under whom I served some years ago. It is very important in the successful keeping of Grapes that not only should the bunches be freely thinned out, but that also when bottled they may hang clear of the bottles. With the Black Alicante especially this is sometimes impossible, or managed with difficulty, on account of its short-jointed growth. Whenever this was found to be the case, either with this or any other variety, we obviated the difficulty by inserting the points of the shoots (in the first instance, I believe, haphazard, and with the intention of using those bunches first), and so well did they keep that since that time I have never been very particular which end was inserted. Mr. Taylor commenced this practice on hearing that Mr. Wildsmith at Heckfield "had caused one of his Vines to grow the reverse way by pegging the top down, and when rooted to cut off its end which had the original roots." Now this accomplishment of Mr. Wildsmith's is another proof that if the old saying, "There is nothing new under the sun," is not right in the abstract, it in many ways frequently receives remarkable confirmation. Whether Mr. Wildsmith does or does not regard his experiment as original I have no knowledge; but I well remember during the early part of my gardening career being much interested in a plan adopted by an ordinary jobbing gardener, to strengthen a very fine well-trained specimen of the common Sweetwater. It was planted near the end of one of a row of connected villas, and was gradually allowed to extend over the front of two others. The main stem was taken along just over the lower windows, and from this at intervals were taken up fruiting rods. From near the centre of the main stem a rod was gradually taken along the under side, and this, when of good strength and well ripened, was brought down and firmly pegged into a heap of fresh soil. It readily emitted roots and swelled rapidly, and when I last saw it (about ten years ago) was bidding fair to attain to the dimensions of the original stem, and was doing its part towards supporting the Vine. The operator was certainly a fairly intelligent man, but his ideas were not original, the practice being merely a repetition of what had been done with a Vine many years before by an old Scotchman.

I might adduce other proofs in support of my argument; for instance, those who have layered Vines in pots may have observed that roots are as freely emitted beyond as they are below the bud or shoot, all alike, when the rods are separated, swelling, spreading, and equally supporting the young Vines. The same thing occurs when the Vines are propagated from "eyes." Neither is the Grape Vine singular in these respects, for I believe the same results would follow the layering or the striking of the points of any free-rooting trees, notably the common Willow, and the inarching of those kinds that do not strike freely, provided the buds were removed from the tips of the shoots.

Mr. Taylor will please to understand that I do not one moment assume superiority, but am writing with the motive of bringing forward a subject which probably but few have ever thought but little of. It is a discovery which both Mr. Taylor and other men may put to a practical use, as offering a good and simple means for the renovation of old Vines.—W. IGGULDEN.

NERIUM OLEANDER ELEGANS.

I WISH to recommend this handsome free-flowering plant, as it is so useful for decorative purposes at this time of the year. The usual time of flowering is much earlier, but I have now some fine specimens with large numbers of flower buds about to expand. This desirable result I attained by cutting down the principal flower stems—which never flower a second time—and placing the plants in an open border until a fortnight since, when I lifted and potted them and brought them indoors. If this lifting be done carefully I have found no check result, otherwise the flower buds drop off. To avoid this, plunge the plant outside in late spring or summer in a pot which the roots will only be likely to fill; if too large you might have foliage but no flowers, and the lifting will not interfere with the subsequent flowering in autumn. It is always best to have a stock of young plants coming on, propagation

is therefore important. Ripened cuttings or side shoots plunged in soft rain water, with a piece of charcoal at the bottom of the bottle, I have found to be the quickest method of increase. The cuttings root into the water in three weeks, and should be potted at first into comparatively small pots, being careful not to press the potting material too hard. Their great pest is white scale, but I have found no trouble in keeping it under by occasionally sponging the leaves with a solution of carbolic soap; even without any scale this would be desirable as a cleansing process for that as well as all fleshy leaves. I saw in July in the conservatory at Glenview a specimen with hundreds of flowers.—W. J. M., *Clonmel*.

THE POTATO DISEASE.

My last paper concluded with the promise of some cultural directions which I have found effectual in mitigating the severity of the disease. They will perhaps be more useful if I am permitted to call attention to the process of growth of the tuber. The set is planted in the soil, and produces a young plant which grows rapidly both in the soil and in the air above it. Briefly, the part in the soil has to gather and carry liquid food to the part above the soil. This part in its turn conveys this sap to the leaves to be acted on by the sun and air. It is then returned to the tubers in the soil. What I want to be grasped very firmly by my readers is the frailty of the mechanism by which this process is carried on. What myriads of delicate organs are performing this work! and this has to be carried on sometimes when the soil is extremely wet, the foliage beaten to the ground by wind and rain, and the air laden with vapour. The consequence is the whole plant is gorged, with little or no chance of disposing of the moisture. Is it, then, surprising that some of these organs give way, are burst, and disease begins?

Now in growing Potatoes subject to trying times, our efforts should aim at helping them over such a crisis in their lives. This can be done by proper planting and good drainage, and by giving room for the sun and air to play around the soil near the roots and through and around the foliage to dispose of the excessive wet by gravity or evaporation. In these general directions the object is to relieve the roots and foliage from excess of moisture.

To dispose of the rain by gravity, see that your land is well drained, trenched, ridged, or deeply dug, that all excessive wet may soon sink away from the roots. If the land slopes always plant with, not across the slope. If compelled to plant in flat stiff soil, throw your land into narrow beds with good trenches on each side, and let your rows run from trench to trench, put your sets in shallow, and earth up slightly.

To secure effective evaporation and get rid of the excessive moisture in the foliage, plant wide both ways—that is, from 2 to 3 feet between the rows, and from 1 to 2 feet in the rows. Here you must consider the quality of the soil and the variety of Potato. There must be no overcrowding nor waste room, but there must be room for thorough ventilation and the sun's rays to reach the soil and roots of every plant. Of seed I would simply say, Secure that which best suits your land, and if possible have it from an inferior climate to your own. It seems hardly necessary to write more particularly to practical men, and its importance will perhaps be more evident upon reflection. I should like to say that writers on the Potato do not appear to notice sufficiently the effect of the foliage on the disease. The high-class Potatoes generally have a much smaller evaporating surface than the coarser varieties. They cannot even bear up their own weight without resting on the ground, while such varieties as the Champion stand erect, and allow the sun and air to play all through the foliage and down to the soil as well. Mr. Lee of Clevedon evidently sees the benefit of this, but does not recognise the cause.

In leaving this subject I should like also to call attention to the following facts, and ask the advocates of the fungus theory to harmonise them with their views. The outside roots of a row and the outside rows of a patch or field always give a larger proportion of sound tubers than the inside rows. The row of Potatoes grown over a rubble drain gave sound tubers when the adjoining rows were nearly all diseased. The row grown on the sheltered side of a line of Scarlet Runners from the south-west rains were dug perfectly sound from a nearly dry soil, while all the rest were badly diseased. Roots grown close to a coarse-growing weed, such as "Fat Hen," invariably give sounder tubers than other roots in the same patch. These are some of the experiences of—
AN INTERLOPER.

PAULOWNIA IMPERIALIS.—I send a leaf of the Paulownia imperialis. I have never seen, in any account of this tree, any notice of the strong smell of opium throughout the whole of it.

This was evident to me on first examining my plant, and it seems worthy of notice. The fresh bark of trees 20 feet high, as well as the succulent stem of those of a foot only, all possess the same quality. This may be of interest to chemists who are not acquainted with the Paulownia.—M. G. S.

FALLING LEAVES AND RUINED CHOIRS.

I NEVER remember the fall of the leaf to have been more swift and sudden. The last two or three days were bright, warm, and calm. The night before last (October 20th) showed 12° of frost; and though the air continued quite still, about 9 A.M. next morning armies of leaves began to move and slip silently to the ground, and in less than an hour most of the trees, notably the Limes and Chestnuts, in our garden and surroundings were all but bare, and the distances were open to the sky which showed coldly blue, and was being rapidly traversed by masses of suspicious woolly-like clouds. The scent of snow was not far off. About 4 P.M. a few drops of rain fell, changing into a sleety shower, and then for a few moments there was a good fall of large snowflakes—unmistakable tokens from the wings of winter. More rain and sleet fell in the night. Now (noon, October 21st) the temperature is clear and cold, not unsettled so much as seasonable.

"When yellow leaves, or none, or few, do hang
Upon those boughs which shake against the cold,
Bare ruined choirs, where late the sweet birds sang."

With us at least the sweet birds did something besides sing. The blackbirds held high banquet in the boughs of the Cherry trees, making no mistake in the successions from early Kentish to late Morello. Their audacity and the audacity of smaller birds is more irrepressible than ever. In a graceful poem under the well-known initials "W. W. S.," in "Blackwood's Magazine" (August), the blackbird is credited with a black bill:—

"His are the sunny sides that through and through
He stabs with his black bill."

Shakespeare in "Midsummer Night's Dream" has—

"The woodcock so black of hue
With orange-tawny bill."

And Tennyson in "The Blackbird"—

"A golden bill! the silver tongue."

My observation inclines to the yellow bill. Is it always yellow? Would it be too much to ask the favour of an opinion from one of the learned contributors to the Journal? Does the age of the bird affect the colour of the bill? Can our English poets and a distinguished American all three be right?—A. M. B., *Mid Lincoln*.

LAWN MOWERS.

WE note under this heading in your last issue on page 374 that Mr. R. Inglis attaches great importance to the practice of leaving the cut grass on the lawn, maintaining that by thus keeping up the fertility he keeps down the Daisies; but he says he collects the grass round flower beds and the edges of the lawn, so that we should like to know whether there is not a well-defined border of the "wee, modest, crimson-tipped flower," or whether the fertility of these places is kept up by the application of lawn manure, or in any other way. If there is really an advantage in the practice, there is surely some decided difference in the appearance of the two differently treated parts, which, however, Mr. Inglis fails to record.

Our experience of leaving the cut grass on the lawn as in most subjects of a like nature, is that the same rule does not hold good in all cases. Where the growth is not very luxuriant, and mowing is well attended to, the practice may be followed, but where there is a vigorous growth it is not to be recommended. We have known instances where sweeping and handpicking have been resorted to in order to remove the dead grass, which was accumulating in sufficient quantity to give a brown appearance to the lawn. The application of a little lawn manure in the spring will keep up the vigour of the grass, and the cut grass may be economically used by digging it in for any other crop.—JAMES CARTER & CO.

THE ROSE ELECTION.

TEAS AND NOISETTES.

I NOW proceed to give the result of the voting for twenty-four varieties. In this, of course, the columns are the same as on page 345. I have only added an additional column showing the position of each Rose in the election of thirty-six varieties, so that it is easy for anyone interested to see the variation of

opinion. It will be noticed that Rubens and Alba Rosea hold exactly the same position; practically Jean Pernet, Madam Welsh, Moiré, and Madame de St. Joseph also do so. Much in the table, however, speaks for itself.

In this twenty-four varieties election the first column denotes the best six (not twelve), the second the next best six, and the third the next twelve.

No.	in 36 var.	Name of Rose.	Charac-ter. Age.	Raiscr's Name.	Ama-teurs.			Total.	Nurse-rymen.			Total.	Grand Total.
					A	B	C		A	B	C		
1	2	Sonvr. d'un Ami ..	T. 1846	Belot Defou-gère	13	8	2	23	12	4	1	17	40
2	8	Maréchal Niel	N. 1864	Pradel	19	2	1	22	14	2	0	16	38
3	1	Catherine Mermet. T.	1869	Guillot, fils..	9	10	3	22	12	4	0	16	38
4	5	Marie Van Houtte T.	1871	{ Ducher ? Levet ?	11	7	4	22	10	6	0	16	38
5	3	Devoniensis	T. 1838	Forster	11	7	3	21	9	6	2	17	38
6	4	Gloire de Dijon ..	T. 1853	Jacotot	14	2	4	20	15	2	0	17	37
7	6	Niphotos	T. 1844?		4	9	7	20	9	5	3	17	37
8	9	Souvenir d'Elise ..	T. 1855	Marcet	7	7	6	20	4	4	6	14	34
9	13	Belle Lyonnaise ..	T. 1869	Levet	11	3	5	19	2	7	5	14	33
10	10	Rubens	T. 1859	{ Robert ? E. Verdier ?	2	3	14	19	1	5	6	12	31
11	14	Madame Willermoz T.	1847?	Lacharme ..	0	4	11	15	2	7	6	15	30
12	15	Madame Lambard. T.	1877	Lacharme ..	2	3	9	14	4	3	7	14	28
13	7	Perle des Jardins..	T. 1874	Levet	0	5	9	14	1	5	8	14	28
14	11	Souvr. de P. Neron T.	1871	Levet	1	6	11	18	0	5	3	8	26
15	17	Anna Ollivier	T. 1872	Ducher	4	3	8	15	1	3	6	10	25
16	18	Céline Forestier ..	N. 1859	Leroy	4	2	4	10	3	3	8	14	24
17	21	Madame Berard ..	T. 1873	Levet	3	3	12	18	0	1	5	6	24
18	22	Com. de Nadaillac T.	1872	Guillot	2	3	8	13	0	2	8	10	23
19	12	Jean Ducher.....	T. 1874	Ducher	2	3	10	15	0	1	7	8	23
20	20	Alba Rosea	T. 1855	Sarter	2	3	7	12	0	5	5	10	22
21	23	Madame C. Knster N.	1872	Pernet	2	6	7	15	0	0	7	7	22
22	26	Adam	T. 1838	Adam	1	1	13	15	0	1	6	7	22
23	16	Madame Falcot ..	T. 1858	Guillot, fils..	0	0	6	6	5	3	7	15	21
24	19	Madame Margottin T.	1866	Guillot, fils..	0	1	10	11	0	3	7	10	21
25	23	Triomphe de Rennes N.	1857	Lanzeur ..	1	4	5	10	0	3	5	8	18
26	25	Homère	T. 1859	Robert	3	3	3	9	0	0	7	7	16
27	29	Bouquet d'Or	N. 1872	Ducher	3	6	4	13	0	1	1	2	15
28	34	Madame Bravy	T.	Guillot, père	1	4	4	9	0	2	3	5	14
29	27	Mad. Hip. Jamin T.	1869	Guillot, fils..	0	2	4	6	0	1	3	4	10
30	38	Innocente Pirola..	T. 1875	Mad. Ducher	0	1	2	3	0	0	5	5	8
31	40	Rêve d'Or	N. 1870	Ducher	1	0	3	4	0	0	3	3	7
32	31	Madame Welsh ..	T. 1878	Mad. Ducher	0	0	1	1	0	1	5	6	7
33	32	Jean Pernet	T. 1848	Pernet	0	0	5	5	0	1	1	2	7
34	42	Madame Camille ..	T. 1871	Guillot, fils..	0	1	5	6	0	0	1	1	7
35	41	Amazon	T. 1873	Ducher	1	3	0	4	0	0	2	2	6
36	37	Lamarque	N. 1830	Maréchal ..	0	3	0	3	0	0	3	3	6
37	33	Marie Guillot	T. 1875	Guillot, fils..	0	0	3	3	0	0	3	3	6
38	46	Madame Charles..	T. 1864	Damaizin ..	0	0	1	1	0	0	5	5	6
39	36	Isabella Sprunt ..	T.	Sprunt	0	0	2	2	1	1	1	3	5
40	30	Boule d'Or	T.	Margottin ..	1	0	2	3	0	0	2	2	5
41	39	Safrano	T. 1839	Beauregard	0	0	1	1	0	1	3	4	5
42	28	President	T.	Americau variety	0	0	3	3	0	1	1	2	5
44		Moiré	T. 1844?		0	0	2	2	0	0	3	3	5
43		Mad. de St. Joseph	T. 1846?		0	0	1	1	0	0	4	4	5

Ten more Roses polled four votes, five were named three times, twelve obtained notice only twice; and twenty-three, a fourth of the whole number named (ninety-four), had but a solitary vote.

Will not this tabular statement surprise many? It is not that in naming twenty-four varieties or thirty-six varieties, there is any such marked difference in the first three dozen, for were a beginner to order the first three dozen from either list there would only be a difference in four; but it is the surprising difference in the number of votes polled after about a dozen have been named. For instance, with twenty-eight voters in the thirty-six varieties, we do not arrive at a Rose polling only half the "highest possible" till we arrive at No. 29, Bouquet d'Or; whereas in the twenty-four varieties with forty-one voters it is reached as early as No. 25, and then with a drop of two below. Indeed the rapid falling-off of the number of votes after two dozen have been named, although the voters are so much more numerous, appears to me fully to bear out the remarks of one of our greatest rosarians in the trade when he says at the end of his list, naming two or three additional, these "would about exhaust the number of Teas." Truly in this comparison of the greater and smaller number of varieties it is quality that tells. Judged by the test of quality—that is, first-class votes, Maréchal Niel must have been a long way at the head; indeed no other Rose would have been near, dear old Gloire following at a respectable distance. There is, in fact, a "soft place," a weak point in the Teas, and it is, I apprehend, setting aside the delicacy, the matter of "stuff." Here, as I ventured in one of the earlier elections to say, is the blot on their escutcheon. Either this valuable quality is deficient, so that many of the varieties are thin, or there is so much of the article that a dampness in the weather or any slight blemish seals up the bud and it refuses to unfold its charms. Such Roses,

for instance, as Isabella Grey, America, and Marie Guillot are extremely disappointing in this way, and it is in this that I think Catherine Mermet excels, that though very full, she rarely refuses to open—at least that is my experience.

As I thought it would interest many of our readers to see the American opinion of the class, I sent a voting paper to our kind friend Mr. Ellwanger, in New York. It will be recollected that his list of two years ago in the general election was noticeable for the very strong aroma of Tea that pervaded it, which made me suspect that the climate was better adapted to their growth than our own, and I now append his list:—

Position in 24 vars.		Position in 36 vars.	
1.	Maréchal Niel	No. 2	No. 8
2.	Catherine Mermet	" 3	" 1
3.	Marie V. Houtte	" 4	" 5
4.	Jean Ducher	" 19	" 12
5.	Madame Bravy	" 28	" 34
6.	Bougère	four votes	" 48, 9
7.	Rubens	No. 10	" 10
8.	Marie Berton	not named	one vote
9.	Comtesse Riza du Pare	only two votes	No. 47
10.	Marie Guillot	No. 37, 8	" 33
11.	Niphotos	" 7	" 6
12.	Triomphe de Milan	two votes.	three votes
13.	Devoniensis	No. 5	No. 3
14.	Souvenir d'un Ami	" 1	" 2
15.	Belle Lyonnaise	" 9	" 13
16.	Homère	" 26	" 25
17.	Comte de Sembui	not named	three votes
18.	Perle des Jardins	No. 13	No. 7
19.	Jean Pernet	" 32, 3, 4	" 32
20.	Comte de Grivel	not named	not named
21.	Madame de Vetry	" "	" "
22.	Marq. de Sanina	one vote	two votes
23.	Mons. Furtado	two votes	No. 52
24.	Sombreuil	three votes	four votes

It thus will be seen that in naming twenty-four varieties Mr. Ellwanger names several that are not considered in any degree deserving with us.

The names of those who have assisted in the election of twenty-four varieties, and to whom all, but most especially the returning officer, are deeply indebted, include, of course, all those whose names appeared in last week's issue as assisting in the thirty-six varieties, and the following additional amateurs:—Revs. Alan Cheales, J. H. Fuller, J. A. Williams, and E. L. Fellowes; Messrs. E. R. Whitwell, Henry Poulter, Wm. Walters, W. H. Wakeley, and J. Tranter; and of nurserymen—Messrs. B. R. Cant, H. Frettingham, Jefferies & Son, and Mitchell & Sons, making with the twenty-eight named last week forty-one voters in all.

I have selected three lists out of the forty-one sent in as specially interesting. Messrs. Ewing's is comprehensive and gives a reason for almost every vote. The Rev. C. H. Bulmer's ideas of "too much alike" are acted on in his list; whilst Mr. S. R. Whitwell adds to each Rose a number signifying its position and value as an exhibition variety.

Messrs. EWING & Co.'s selection.

"Best six Tea or Noisette Roses for general purposes, second best six, next twelve, and third twelve."

- Gloire de Dijon (not a true Tea)
- Maréchal Niel (for climbing under glass or on walls)
- Niphotos (for pots, planting out under glass, forcing, and low walls in the open air)
- Perle des Jardins (the best yellow for pots)
- Madame Falcot (the best of its colour for cutting in the bud state for button-holes and bouquets)
- Isabella Sprunt (the best of its colour for the same purposes as Madame Falcot)
- Rêve d'Or
- Aline Sisley
- Duchess of Edinburgh (Veitch)
- Homère
- Innocente Pirola
- Letty Coles
- Madame Bravy
- Madame Bremont
- Madame Camille
- Madame Charles
- Madame Denis
- Madame J. Margottin

The following may be classed as about equal in merit:—Madame Margottin, Safrano, Sombreuil, Triomphe de Milan, and Madame Welsh. The last-named Rose will probably have a higher position after further trial.

The following are equal for many purposes to the above:—Catherine Mermet, Climbing Devoniensis, Old Devoniensis, Jean Ducher, Louise de Savoie, Madame Lambard, and Marie Van Houtte.

- Rubens
- Céline Forestier
- Bougère
- Lamarque
- Solfaterre
- Triomphe de Rennes

Equal to the above for various purposes are David Pradel, L'Enfant Trouvé, Comte de Sembui, Madame C. Kuster, Adrienne Christophle, Perle de Lyon, Belle Lyonnaise, Cheshunt Hybrid (not a true Tea), Madame Willermoz, Souvenir d'un Ami, and Comtesse de Nadaillac. The last variety will probably go up higher when more experience has been had of it.

- Goubault (extra fragrant)
 - Viscomtesse de Cazes
 - La Boule d'Or (under glass only)
 - Madame Damazin
 - Abricote
 - Madame T. Janin (for small buds only)
 - Madame Trifle
 - Madame Cecile Berthod
 - Marie Guillot
 - Reine de Portugal (this Rose and Marie Guillot would be amongst the "best" if they opened freely)
 - Souvenir d'Empereur Maximilian
 - Souvenir de Paul Neyron
- (Some of this season's Teas and hybrid Teas promise well, but we do not name them till we have proved them more fully.)

Rev. C. H. BULMER'S selection.

- | | |
|-----------------------------|---------------------------|
| 1. Maréchal Niel | 18. Triomphe de Rennes |
| 2. Catherine Mermet | 19. Jean Ducher |
| 3. Marie Van Houtte | 20. President |
| 4. Souvenir d'Elise | 21. Céline Forestier |
| 5. Madame Bravy or Sertot | 22. Cheshunt Hybrid |
| 6. Caroline Kuster, N. | 23. Belle Lyonnaise |
| | 24. Adam |
| 7 { Devoniensis | |
| { Climbing Devoniensis | 25. Madame Céline Noirey |
| 8. Niphotos | 26. Jean Pernet |
| 9. Madame Margottin | 27. Anna Ollivier |
| 10. Comtesse de Nadaillac | 28. Innocente Pirola |
| 11. Souvenir de Paul Neyron | 29. Madame Lambard |
| 12 { Souvenir d'un Ami | 30. Madame Camille |
| { Souvenir de Madame Pernet | 31. Perle de Lyon |
| { Comtesse Riza du Pare | 32 { Madame Faleot |
| | { Safrano |
| 13. Gloire de Dijon | 33. Madame Berard |
| 14. Rubens | 34. La Boule d'Or |
| 15 { Alba Rosea | 35. Nareisse |
| { Eugène Desgaches | 36 { Beauty of Glazenwood |
| 16. Madame Hippolyte Jamain | { Fortune's Yellow |
| 17. Ameriea, N. | |

Mr. E. R. WHITWELL'S selection. (Best six, second best six, and next best twelve Roses.)

- | | |
|---------------------------------|-----------------------------------|
| 1. Belle Lyonnaise, 6 | 13. Madame Margottin, 21 |
| 2. Gloire de Dijon, 24 | 14. Anna Ollivier, 16 |
| 3. Bouquet d'Or, 15 | 15. Jean Ducher, 12 |
| 4. Maréchal Niel, 1 | 16. Rubens, 10 |
| 5. Marie Van Houtte, 5 | 17. Madame Berard, 17 |
| 6. Souvenir d'un Ami, 11 | 18. Souvenir d'Elise, 3 |
| | 19. Devoniensis, 23 |
| 7. Homère, 22 | 20. Souvenir de Madame Pernet, 19 |
| 8. Due de Magenta, 28 | 21. Adam or President, 13 |
| 9. Madame Hippolyte Jamain, 7 | 22. Comtesse de Nadaillac, 8 |
| 10. Catherine Mermet, 2 | 23. Madame Willermoz, 18 |
| 11. Souvenir de Paul Neyron, 14 | 24. Alba Rosea or Madame Bravy, 9 |
| 12. Niphotos, 4 | |

The number given on the right of each name is the order in which I should place them for exhibition purposes.—E. R. W.

Once again let me express my grateful thanks to those who have helped by their lists, and especially to those who have not contented themselves by a simple list, but have also by their grateful recognition of the labour involved made my task all the easier; to one and all, a rosy future.—JOSEPH HINTON, *Warminster*.

TWO KENTISH GARDENS.

HAVING already discoursed on Mascalls I must now proceed to say a few words on Weirleigh, the residence of our genial and worthy friend Mr. Harrison Weir, whose house, as I have said, stands on a hill. Externally at a distance it looks odd. I will not say how irreverently the Major speaks of it, but when you once reach it all feelings of disparagement cease, and you at once recognise that you are at the house of an artist. It abuts on the road, and on the stone facings Mr. Weir has had carved a Gloire de Dijon Rose, which is represented as again coming out as a good climber ought to do—higher up. Inside the house is delightful; it is one of those Queen Anne houses by which Mr. Wadmore of Tunbridge has earned so good a name. Being built on the side of the hill it gives fine opportunity for many tasteful contrivances. And what can be said of the view from the reception rooms? The whole end of the dining-room, a lofty and well-proportioned room, is one large window, and from it a view unsurpassable in its character is obtained. The valley of the Medway lies stretched out before you with all its luxuriant beauty, Hop gardens, orchards, and abundance of grand foliage. In the near distance is Maidstone; while stretching out on the sky line you have the backbone of Kent, the range of hills which run behind Maidstone on to Lenham and the heading off by Eastwell and Wye to the sea. A little further to your right many a quiet village and country seat is seen embosomed in foliage, including that white house in Linton, the residence of Viscount Holmesdale, from whence John Robson used to delight the readers of the Journal in days now past. A little further on is Sir Edmund Filmer's near Sutton Valence; and wherever, in fact, we turn, some fresh scene of pastoral or woodland beauty delights the eye.

The object of Mr. Weir in his garden has been to produce picturesque results in each separate place rather than a grand general effect; so that as you go round the grounds you come on bits which, like those in a picture, delight you by their completeness in themselves while in no way interfering with the general effect. As you enter the garden from the house you come on a shrubbery in which is arranged a very good collection of Ferns, a result you would never have expected when you entered the place. In walking round the shrubbery you are continually meeting unexpected effects produced by seemingly small means. Here is a mass of Rudbeckia, there of Anemone japonica, mixed

with smaller plants, and so arranged that variations of colouring should be combined with elegance of form. Here you turn off to a little nook from whence there is a delightful glimpse of a woodland glen close by; and here is a walk shaded with Apple trees which must be a real delight in spring time when the trees are in bloom. Mr. Weir, as most of your readers know, is an experienced fruit-grower, and brings up from time to time to the Royal Horticultural Society specimens of his skill, especially in Grape-growing. Cordon trees were doing well and bearing some fine Apples. In his two houses were some Vines exceedingly well grown. But unquestionably the glory of the place, as far as fruit-growing is concerned, was the ground vinery. I have been through many gardens in my time. I have talked over these vineries with good old Mr. Rivers of Sawbridgeworth, and have seen them there; this was many years ago, how many I am afraid to say, but never since then have I in any garden seen an attempt at following out Mr. Rivers' plan. Indeed I cannot call to recollection any ground vinery; but after seeing Mr. Harrison Weir's very successful vinery I am induced to ask why they are not more often attempted. The length of his vinery is 36 feet and formed of six lights 6 feet each. The Vines are planted in a bed outside and then brought in to the case. The bottom is lined with tiles, and the Vine led along under the span of the case; and here might be seen bunches of Madresfield Court large, shapely, with well-ripened and well-coloured berries, quite equalling those grown in a house. We counted between thirty and forty bunches. As far as I could see there was at least a bunch to every pane of glass. The frames are inexpensively made, glazed without putty, and can be easily lifted off and moved in any direction. These vineries are very useful for growing Strawberries in or for hardening off bedding plants. In fact they may be put to many uses; and I am sure that anyone seeing those of Mr. Weir's would at once say, "Well, I must try and have some of these." Such was my own impulse, but then came the unpleasant reflection of "no assets."

Mr. Weir, while not relying on bedding-out plants, does not despise their moderate use, and indeed has been very successful in his hybridising of Pelargoniums, one very beautiful pink variety being especially worthy of notice.

Returning to the house we came upon a collection of Auriculas apparently in most robust health. Contrary to all the rules and directions so constantly given, the plants were standing out in the open exposed to rain, and in pots about twice the size of those in which they are ordinarily grown. They had their offsets in abundance, and were as healthy a lot in a small way as I have seen for some time. I do not know how they will fare when brought into their winter quarters, but at present they look uncommonly well.

Such, then, is Weirleigh, the home of a real artist, of a true lover of Nature. He has brought his art to bear in adding to the natural beauty of the place, and he has truly learned the truth that *Ars est celare artem*.—D., *Deal*.

LAWN TENNIS GROUND.

SEEING in your esteemed Journal that one of your correspondents desires some hints as to the formation of a lawn tennis ground, I have much pleasure in sending you the following few remarks, which I hope may prove of service. To begin with, a full-sized court for four players is 26 yards long by 12 yards wide. As much play takes place at the extreme ends or "back lines" of the court, a considerable margin is required at each end; the total length of the tennis ground should therefore, if practicable, be not less than 33 or 34 yards. My own tennis ground is at present only 18 yards wide, but it would be preferable to have it considerably wider than this so as to allow of the position of the court being moved a little one way or the other, and thus obviate wearing out the ground unduly. It is generally a good plan to have a little drainage material laid under the turf, so that the ground will not be so liable to play "dead" after rain.

If a wire fencing about 6 feet high is placed at each extreme end of the ground, and a lower fencing about 3 feet high running along each side, this will be found to save a great amount of superfluous muscular exercise in "fielding" the balls. If neatly put up and painted dark green this wire fencing does not appear too prominent in the grounds.

The ground should be as nearly level as possible, as uphill or downhill playing is most undesirable.—A. T., *Liverpool*.

IN reply to "W. F. M." I desire to state that the regulation size of tennis courts is 78 feet by 36 feet. Outside this there should be at least a yard all round, but better if it is two—namely, 85 feet by 42 feet of level lawn. Tennis lawns are

generally made quite level, which I think is a mistake, especially if the soil is of a stiff moist nature. It is much better if the ground is kept a little higher in the centre, say 4 or 5 inches, so that when a heavy rain occurs much of it passes off to the sides and ends, and the ground is quicker dry and fit to play upon sooner than when made perfectly level, and the greater part of the rain having sunk into the ground. It is very essential to have a firm surface; and for this reason, where the soil is clay or is wet, it is a good plan, after having levelled and consolidated the ground, to spread about an inch of clean coal ashes over it before laying down the turf. In addition to this it should be previously well drained. On light dry soils less trouble is necessary to have a fair tennis lawn; indeed, it may be played for "home practice" on any lawn where there is a little less room than is required for full-sized courts, and although it is not quite level.—R. INGLIS.

[Messrs. James Carter & Co. and other correspondents have also stated the regulation size of tennis grounds, but state that the size is generally governed by the extent of lawn at command.]

DEATH OF THE REV. JOHN HUYSHE.

WE regret to learn of the death of this venerable gentleman, who, after a period of failing health, expired at Clysthydon, Devon, on the 19th inst. Mr. Huyshe was born in 1800, and he had been rector of Clysthydon for half a century. He was one of the oldest magistrates of the county, and was held in the greatest estimation by all who knew him. He was an earnest worker in the interests of pomology, and it will be appropriate to submit

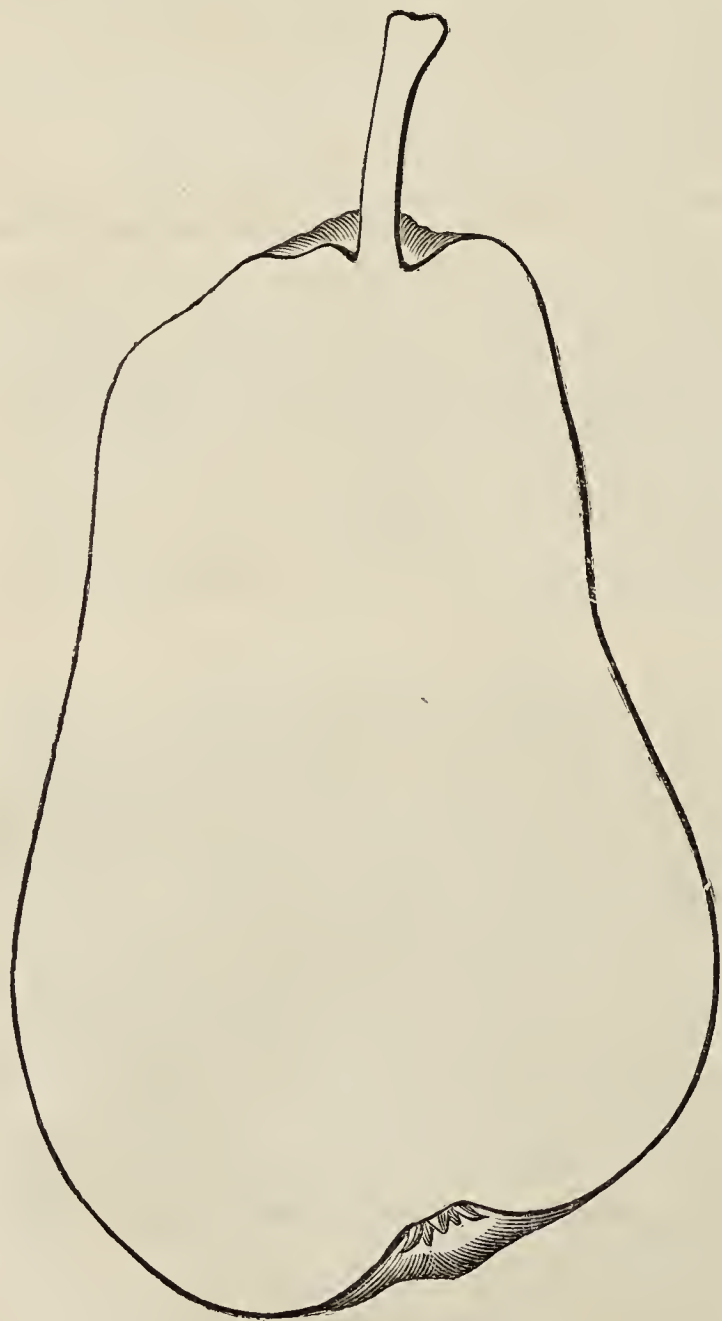


Fig. 71.—Huyshe's Prince Consort.

the results of his labours as a raiser of Pears. The accompanying account of the "Royal Pears" first appeared in the "Gardeners' Year-Book" of 1867.

The Royal Pears have a just claim to such a title. Raised as

they were by the descendant of ancient royalty, introduced as they have been at the table of royalty, and bearing as they do right royal names, what better claim could they have to such a designation? In their origin, too, they are no haphazard mongrels, but individuals of high descent and noble pedigree, and valuable additions to our pomological collections. "It is now about thirty years, or rather more," wrote Mr. Huyshe in the autumn of 1864, "since I began the practice of hybridising Pears, and the effects

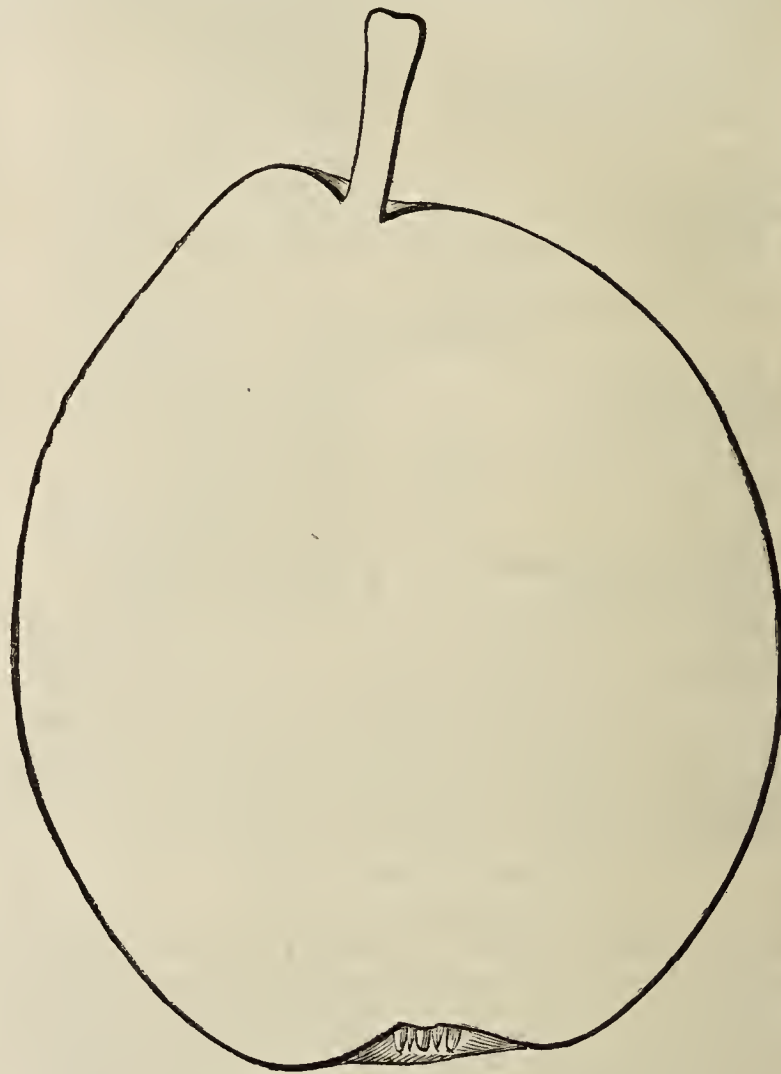


Fig. 72.—Huyshe's Prince of Wales.

have been peculiarly striking. From Marie Louise hybridised with Gansel's Bergamot I obtained three pips from one fruit, and the produce of these were respectively the Pears now known as Victoria, Prince of Wales, and Princess of Wales." In a previous letter of the same year he says—"I send you another Pear, a seedling, being a hybrid between Beurré d'Aremberg and Passe Colmar. It has borne fruit this year for the first time, and what it may be of course I know not, but it seems to promise to be good." It did prove good, and we were subsequently informed that "Mrs. Huyshe wishes it to be named Huyshe's Prince Consort, in memorial of one whose character she greatly admired."

Such, then, is the origin of these four fruits, and the figures and descriptions on this and the following page will furnish a good idea of their characters and qualities.

HUYSHE'S PRINCE CONSORT.—This is the most recent of Mr. Huyshe's seedlings, and, as has been already stated, is of a different parentage to the three preceding, having originated from Beurré d'Aremberg fertilised by Passe Colmar. It is a noble Pear, of large size, and unusually bossed and uneven in its outline. The skin is grass-green even when ripe, and sometimes acquires a yellowish tinge, and very much covered with russet, exposing the green ground only in mottles. The flesh is yellowish, rather coarse-grained like that of Beurré de Rance, very juicy and melting, but not buttery; sweet, vinous, and with a very powerful melon or vanilla flavour, which is not only peculiar but highly agreeable. It is a splendid Pear, and ripens in the end of November and the beginning of December. With great liberality Mr. Huyshe presented the entire stock of this admirable Pear to the Royal Horticultural Society of London for distribution among the Fellows.

HUYSHE'S PRINCE OF WALES.—This was originally called Huyshe's Bergamot, not because it is at all like a Bergamot, but because the flavour bears some resemblance to that of its male

parent—Gansel's Bergamot. On it being represented to Mr. Huyshe that such a name was at variance with the appearance of the fruit, and might tend to mislead, he at once consented to the change, and it has now for some years been known as Huyshe's Prince of Wales. The fruit is large, sometimes immensely so; and we have seen it grown against a wall as much as 4 inches long and $3\frac{1}{4}$ in diameter. Its ordinary size when well grown is that represented in the figure. The skin is of a lemon yellow ground, veined with cinnamon-coloured russet. Eye small for the size of the fruit, and open. Flesh yellowish, tender, and fine-grained, melting and very juicy, richly flavoured, and with a high aroma.

HUYSHE'S VICTORIA.—This and the following made their appearance in public much about the same time, and at once took their position as fruit of high merit. In form Victoria is very characteristic. The two shapes which it usually assumes are represented in the accompanying figure, where it will be observed that one is very similar to Beurré d'Aremberg, with the very oblique stalk; while the other has the stalk inserted in a line with the axis, and is particularly short and stout. The skin is of a yellowish ground, and freckled and veined all over with thin, smooth, cinnamon-coloured russet. The flesh is yellowish, sometimes a little gritty at the core in dry seasons, and melting; very juicy, rich, sugary, and vinous. It is in use during December and January.

HUYSHE'S PRINCESS OF WALES.—This is the third of the produce of the "three pips from one fruit," and like Victoria varies much in form. Sometimes it is quite cylindrical and pinched in at the middle with a sort of waist, even more so than is represented in one of the figures. The skin is like that of a handsome Marie Louise, with a smooth lemon yellow ground colour, sprinkled with patches, veins, and dots of pale cinnamon-coloured russet. Flesh of a deep yellow colour; and in specimens received from Mr. Huyshe in 1865 was very melting and abundantly juicy, fine-grained, richly flavoured, and with a very high aroma. That same season it was presented to the Princess of Wales at Sandringham, who was graciously pleased to express herself very highly of its great merits. It is ripe in the end of November.

Such a measure of success as has attended Mr. Huyshe's efforts rarely falls to the lot of hybridisers. It is, however, but the reward of intelligence well directed to the attainment of a certain end. Not only is it necessary to select and carefully hybridise the parents, but, says Mr. Huyshe, "I am careful now in sowing only the round pips, not those that are flat-sided. I have only one more tree, a hybrid between Beurré d'Aremberg and Passe Colmar, from a flat-sided seed, and the difference is quite wonderful."

Those who desire a memento of a kind, industrious, and estimable man, cannot do better than plant the quartette of Pears which he succeeded in raising, and the merits of which have been proved in many gardens.

ORCHIDS IN FLOWER.

OCTOBER is by no means the best time of the year to see Orchids in their best condition, but notwithstanding the dullness of the season and the paucity of flowers in other departments, the Orchid house is still very attractive. On visiting two or three collections a few days since I was agreeably surprised to see the number of species in flower, some of them being fine specimens. Conservatories and plant houses generally are alike dull at this time of the year and onwards, till the Dutch bulbs, Primulas, Cinerarias, and Chrysanthemums come in to brighten their appearance, and the Orchid house lately has been anything but lively; but now and a little later on there is and will be many good plants flowering.

Amongst the most remarkable and ornamental Orchids that I noticed in my journey the following may be mentioned. *Angraecum falcatum* was growing in a basket suspended from the roof, and bearing numerous spikes of pure white flowers, the spur of which has a peculiar bend. This is a little gem in its way, although the flowers are not so large as its near relation *A. Scottianum*, which was just past flowering. *Aërides quinquevulnerum* was also in flower; this is considered by many to be one of the handsomest of the *Aërides*. Of *Dendrobies* that were in good condition and flowering freely were *D. bigibbum*,

D. triadenium, *D. eumulatum*, and *D. formosum giganteum* with two flowering spikes and three flowers on each, the petals and sepals being pure waxy white with a large spot of bright yellow on the base of the labellum.

Cattleyas were making a show, for I had the pleasure of seeing some of the good old kinds—viz., *C. labiata*, *C. exoniensis*, and *C. maxima* with two growths and three flowers on each. The

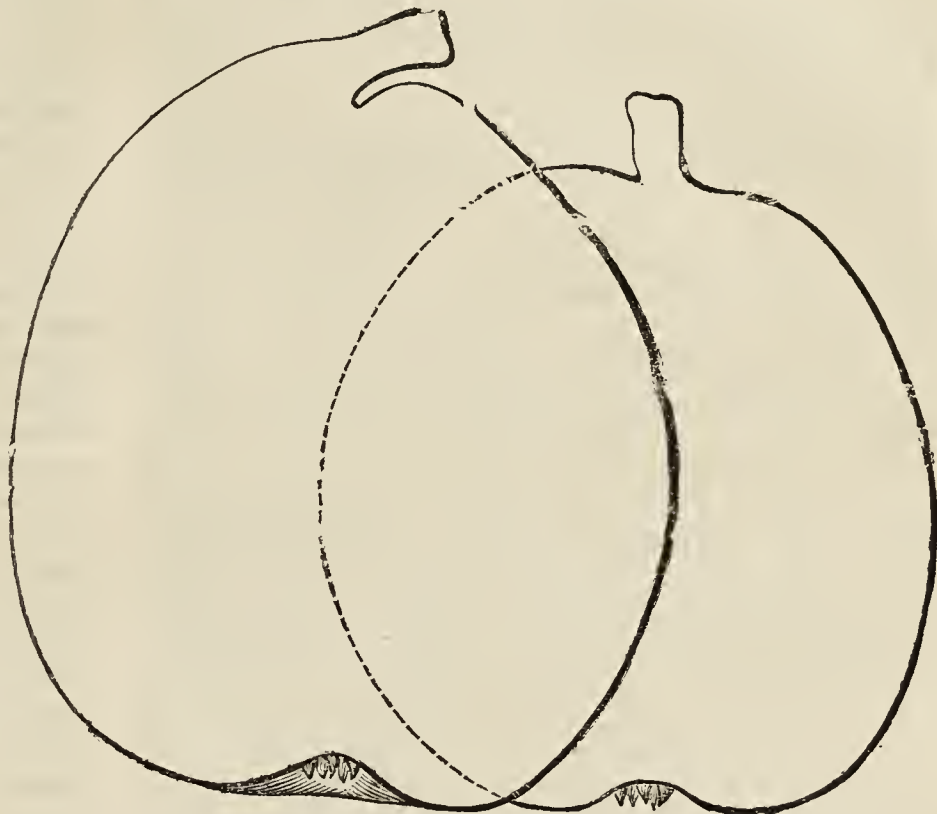


Fig. 73.—Huyshe's Victoria.

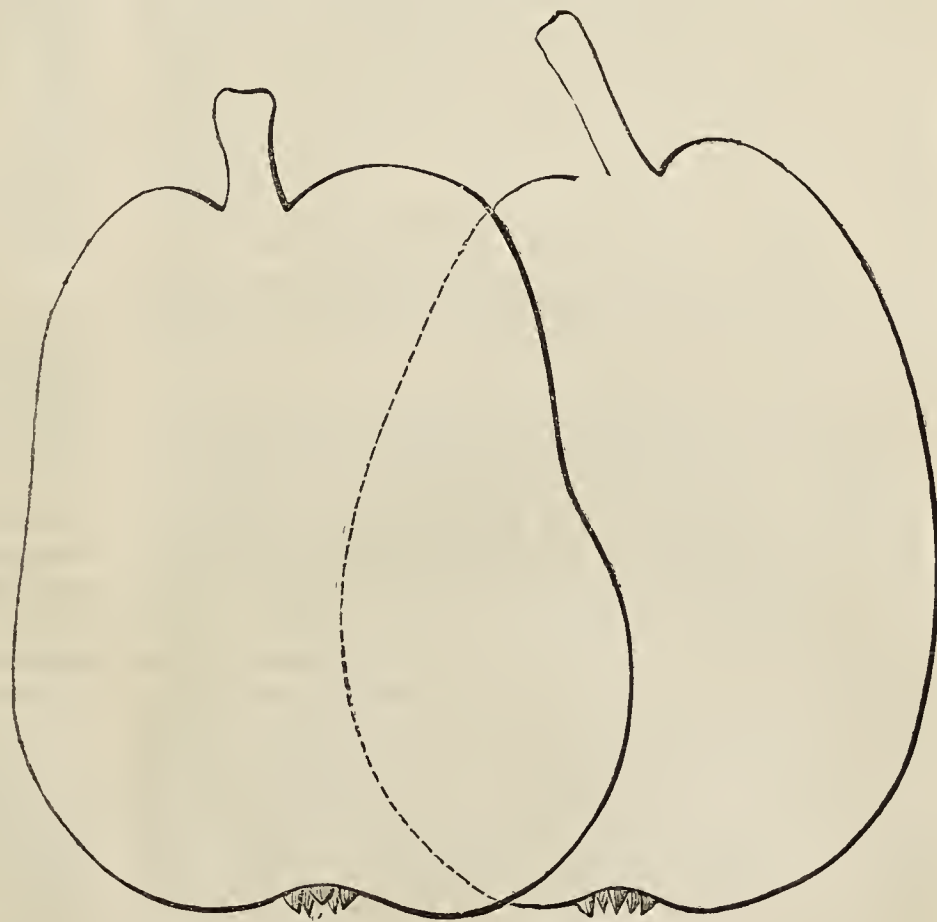


Fig. 74.—Huyshe's Princess of Wales.

latter is a grand species when well grown; the flowers are of great size and substance, and the veining of the labellum is very handsome. *Cypripediums* were well represented, there being several fine species in flower; in fact, some are never out of flower, such as *C. Sedeni*, *C. Roezlii*, and *C. longifolium*. They always seem to be in season, and are always appreciated; but *C. niveum*, in my estimation, is the best of the genus, and is always welcome;

so also is *C. concolor*, which makes a pleasant companion to the former. *Lælia Dayana* was flowering freely in the *Odontoglossum* house, and associated with its gigantic form *L. pumila* makes a grand display. I was much surprised to see the small pseudo-bulbs producing the enormous flowers they did. These two species deserve to be more extensively cultivated than they are. *Lælia Perrinii* was in fine condition. The flowers vary considerably in size and colour; some of the varieties are a dark rose or purple colour, others quite pale, and I noticed one named *L. Perrinii alba* that had almost pure white sepals and petals with a blotch of deep purple on the end of the labellum.

*Oncidium*s were numerous, amongst them being a remarkably fine variety of *D. macranthum* with one long spike of bloom; the flowers were of immense size and of a beautiful soft lemon yellow. *O. verrucosum* was in flower in many varieties. One named *O. verrucosum* var. *Rogersii* was so much different from the typical form that one would suppose it was another species from the great size and substance of the lip. *O. incurvum* is a pretty species now in flower, producing branched spikes from 3 to 4 feet long; the flowers, as the name implies, are incurved and are of a beautiful pale lavender colour. *O. ornithorhynchum* is a little gem, the flowers of which are delightfully fragrant, differing very much from a neighbouring plant of *O. bracteatum*, which produces flower spikes 4 to 5 feet long; the spikes are clothed at intervals with long sharp-pointed bracts, giving them rather a singular appearance. Of *Odontoglossum*s there were many in flower, but the following are a few of the best—viz., *Odontoglossum Alexandræ* in numerous varieties, not two plants being alike; *O. grande* I saw in splendid condition, and *O. Rossii* var. *majus* growing in a pan which was literally covered with flowers. I must not pass over the little Indian *Crocuses* without giving them a word of praise. The most common are now in season—namely, *Pleione lagenaria*, *P. maculata*, and *P. Wallichiana*, as these flower without the foliage; the flowers are shown off to the greatest advantage by pricking some small seedling Ferns between the pseudo-bulbs as the old leaves drop off, and by the time the flowers are fully expanded the Ferns will have grown a little, which help to tone down the glow of colour produced by so many flowers. *Polystachya grandiflora* is a species not frequently met with, and when seen grown to perfection it is indeed a curious and highly interesting species. The flowers are placed on the spikes so as to appear as if turned upside down, assuming the appearance of little hoods.

*Phalanopsis*es were represented by *P. amabilis* and *P. grandiflora*; their good qualities are too well known to require anything said about them. *Saccolabium Blumei* was producing two fine spikes of its rosy-coloured flowers. *Vanda tricolor superba* was also bearing two fine spikes of flowers, which filled the house in which it grew with its delicious perfume; and *Vanda cærulea*, a species not often seen in flower, was producing nine large flowers on one spike of a light lavender colour. Last, but not the least, the old and highly valued *Zygopetalum Mackayi*. I could extend the list, but space forbids; let it suffice, I was highly delighted with my day's outing among the Orchids and their growers.—W. K.



FROM the Agricultural Returns issued by the Board of Trade, we learn that ORCHARDS IN GREAT BRITAIN again show a satisfactory increase, their acreage being this year returned as 180,000 acres, against 176,000 in 1879 and 165,000 in 1878. Market gardens have also increased from 41,000 acres to 44,000 acres, and the collectors report both with regard to orchards and market gardens that there is a growing demand for fruit and vegetables, especially in the neighbourhood of towns. The uncertainty of the climate for fruit-growing must always, however, tend to restrict the extension of fruit plantations except in naturally favoured districts. A special return of the acreage of woods and plantations has been obtained this year, the last return of this nature having been made in 1872. Since that date the acreage appears to have increased from 2,187,000 acres to 2,409,000 acres, or nearly 10 per cent.

— THE EXHIBITION OF CHRYSANTHEMUMS AT FINSBURY

PARK, referred to in a recent issue of the Journal, is now open to the public, and although the plants are not yet at their best there is promise of an exceptionally fine display. About 1200 plants are arranged in a long temporary erection near the lodge entrance to the Park, and they appear to have received admirable attention, for in vigour of growth, healthiness of foliage, and size of flower buds they are the finest we have seen this season. Many flowers are already open, that handsome variety *Elaine* being the most noticeable; but in the course of another week a great advance will no doubt be made. One hundred and fifty varieties are represented, including all the best in commerce.

— MR. RECORD writes as follows concerning the *DOYENNE BOUSSOCH PEAR*:—"Although there is no lack of good autumn Pears from which intending planters can make a suitable selection, some varieties are not so reliable as others, and it is therefore well to know which are the best. I would advise that the above variety be included. I have proved it to be a Pear of the finest quality. It is large and noble in appearance, of rich flavour, flesh melting and juicy, skin very thin, and when ripe of a russety lemon colour. It is also a capital cropper, and does well against a wall with an eastern aspect in the south of England, but northwards it would need a good south wall. Worked on the Quince stock the tree has a moderately vigorous growth, and generally forms plenty of fruit buds; it also does well as a pyramid, though it ripens somewhat later. I have had it in use from the latter part of October to the middle of December, and it was always welcomed at table as a first-rate dessert Pear."

— WE are requested to announce that the Committee of the WIRRAL ROSE SOCIETY intend holding their Show next year on July 16th, the Saturday following the day of the provincial Show at Sheffield of the National Rose Society. We have also received the schedule of the Wirral Show, and observe that the classes are more numerous and the prizes more valuable than last year. Eleven of the classes are open to all comers, including the amateurs' class for thirty-six varieties, the first prize of which consists of a piece of plate value £10. The local prizes, which are good, are open for competition by growers within the Hundred of Wirral and ten miles round the Liverpool Exchange. Mr. John Smith, Woodside, Rockferry, is the Secretary.

— WRITING on the productiveness of the *MAGNUM BONUM* POTATO, Mr. R. W. Lumsden, of Newstead, Bridge of Allan, informs us that he planted 1 lb. weight of this Potato on the 12th of April last, and when they were taken up on the 16th of October the produce was 114 lbs. 3 ozs. Some of the Potatoes were 6 and 7 inches in length. Our correspondent does not say whether he cut the sets into single eyes and grew them the same as Mr. James Pink did *Eureka* and *Snowflake* a few years ago, and obtained of the former 672 lbs., and of the latter 405 lbs. from 1 lb. of seed each. If Mr. Lumsden had not recourse to the system indicated his crop is a very heavy one; but under ordinary culture the *Magnum Bonum* is known to be highly productive, and in some soils the tubers are of excellent quality.

— IN the Cape House at Kew a pretty little bulbous plant is now flowering—namely, *NERINE CRISPA*. The leaves are small and narrow, the scape rising to the height of a foot and bearing an umbel of about a dozen flowers. These are also very small, scarcely exceeding an inch in diameter, the perianth divisions being narrow, crisped or undulated, and spreading, of a delicate pinkish tint. It is very distinct, and appears to thrive well under pot culture. Another attractive species is flowering near the above—viz., *Nerine pudica*, which has white somewhat funnel-shaped flowers, very dissimilar in appearance from those of *N. crispa*. Three or four flowers are borne on each scape, the white being pleasantly relieved by a faint streak of pink down the centre of the perianth divisions.

— WRITING to us on the WEATHER IN LANCASHIRE a Grange-over-Sands correspondent states:—"We have not had any snow here, but severe frost. On the night of the 19th inst. the mercury fell to 23°, or 9° of frost; on the 20th to 27°, or 5° of frost; and on the 21st to 22°, or 10° of frost."

— WE have received from Messrs. Sutton & Sons of Reading a sample of MAGNUM BONUM POTATOES, with a request that we should test their quality. We have done so, and found them excellent. Had they been more floury their shape when cooked would not have been retained, while at the same time they were melting, the flavour delicate and most agreeable. On all soils the tubers are not equally good, and they usually improve in quality as the spring approaches.

— WE recently noticed an admirable specimen of MIKANIA PULVERULENTA trained over a pyramidal trellis in a large pot, and as the trellis was well covered with foliage the effect was very good. The leaves are palmately divided with irregularly cut segments, very dark green, of a velvety appearance. The plant is climbing in habit, and may be trained up the rafters of a stove or employed as a plant for the stages. A compost of rich loam with a good proportion of sand and abundant drainage suit it well.

— REFERRING to LIFTING UNRIPE POTATOES, Mr. W. Roberts, of Penzance, states that "In Cornwall the early varieties are almost without exception dug immediately they finish growing, be the stalk green or not. I am quite aware that many gardeners allow Potatoes to remain in the ground until the stems are quite dead; but surely a plan that is generally adopted here is worth trying, considering that several hundreds of tons are dispatched weekly to the London and other markets."

— A CORRESPONDENT writes—"There is every prospect this autumn of a fine display of CHRYSANTHEMUMS IN THE VICINITY OF LIVERPOOL. The fine summer weather in the later stages of their growth thoroughly ripened and matured the wood. Last year the growth was rapid and soft, and under such conditions well-developed blooms were scarcely expected. The weather has during the past week or two been most favourable for the early development of the flower buds, and if all goes well for a few more weeks some magnificent blooms both as regards colour, size, and form may be expected at the Liverpool Show."

— FROM the same source we learn that "THE ALLAMANDAS AT NORRIS GREEN are still magnificent. The plants are grown in pots and are trained over the roof of the stove, and have been blooming continuously for some months past. The flowers are not so large now as they were earlier in the season, although they are quite as numerous."

— A CORRESPONDENT writing relative to the WEATHER NEAR SHEFFIELD states:—"We have had a week of very cold and frosty weather here. The thermometer has registered from 4° to 10° below freezing point on different nights, Tuesday night being the most severe, accompanied with a slight fall of snow; not sufficient, however, to afford protection to many plants, as the immature growth has been blackened by the cold, and now the foliage is fast falling, leaving some trees as denuded as in the depth of winter. The crop of fruit about here has not been good, neither has the quality been excellent; but almost all kinds have made good growth, and with plenty of fruit buds let us hope that these early frosts have not injured them."

— TWO elegant plants for the tropical fernery are SELAGINELLA ERYTHROPHYLLA and S. HÆMATODES, both of the caulescent type, with flattened closely-pressed fronds of triangular form. S. erythrophylla is particularly neat, the fronds appearing as if they had been carefully pressed in a book, so flat and even are all the leaflets, which are of a fine dark green hue. S. hæma-

todes has rather larger and coarser fronds of a bright fresh green colour, but the leaflets in that are also so closely placed as to bear the pressed appearance which characterises the other species. Both succeed well in shallow well-drained pots or pans containing a light compost of peat, loam, and sand, and they may be easily increased by division.

— UNDER the attractive title of the "GARDENS OF THE SUN; or a Naturalist's Journal on the Mountains and in the Forests and Swamps of Borneo and the Sulu Archipelago," a new book is announced by Mr. F. W. Burbidge. The admitted ability of the author as a writer and practical horticulturist, and his peculiar field of observation, invests the coming volume with considerable interest.

— THE *Journal of Forestry*, in an excellent article on the advantages of AUTUMN PLANTING, concludes as follows:—"In nearly every instance of forest tree planting the work can be better and more expeditiously performed in the autumn than in either the winter or the spring, and by doing so the losses from everything but game are reduced to a minimum. Still, the dilatory and less successful practice of winter and spring planting generally prevails in most parts of the country, and often in circumstances where no excuse can be made for neglecting to plant in the autumn—the most economical as well as the most favourable season for the operation. As knowledge spreads, and the principles of plant life are better understood among those in charge of forests and plantations, autumn planting will be more generally adopted, with much saving to the landowner and more success and credit to the skilful operator."

COMING CHRYSANTHEMUM SHOWS.

Now that the Chrysanthemum season may be said to have arrived, and the exhibitions fast approaching, a few remarks upon the provisions the various societies have made to ensure good displays may not be uninteresting to some of our readers. We have before us the schedules of nineteen Societies, some of which are exclusively devoted to the improvement of the Chrysanthemum, while others endeavour to render their exhibitions as generally interesting as possible by offering prizes for plants, fruit, and vegetables. In all, however, special provision is made for the Chrysanthemum.

The first Show on the list is that of the Brixton Society, which is to be held on November the 11th and 12th. Thirty-five classes are enumerated, fifteen being devoted to Chrysanthemums, the prizes varying in value from 40s. to 2s. 6d. Provision is made for specimen plants, which are usually very good there, and the various sections of cut blooms, which are also generally well represented. One speciality worth notice is a class confined to growers who have not previously taken a prize for Chrysanthemums. The Stoke Newington Society follows with an Exhibition on November the 15th and 16th. This old and well-known Society is solely devoted to the encouragement of Chrysanthemum culture. The most important class is that for a collection of ten specimens in 11½-inch pots, for which a six-guinea silver cup is offered as the first prize. The Borough of Lambeth Amateur Chrysanthemum Society will hold their sixth exhibition on November 15th, 16th, and 17th. The competition is confined to amateurs within a mile and a quarter of the Elephant and Castle, and yet the general good quality of the exhibits staged there is surprising. The prizes are not high, but they include four silver cups as first prizes. One stipulation, so far as we know, does not occur in any other schedule—viz., "that all blooms be shown as grown, and any exhibitor staging blooms or plants with the flowers artificially dressed shall be disqualified." The Putney Society will hold a Show of one day's duration on November the 16th, when a satisfactory display may be expected, the cut blooms being generally good there. There is nothing particularly noteworthy in the schedule except the class for the best collection of specimens of not less than twenty varieties, a silver cup and three prizes being offered. The Walton and Weybridge Exhibition will take place upon the same day, when, in the twenty classes devoted to Chrysanthemums alone, a display of considerable merit may be confidently expected. Curiously in the schedule that we have there is no intimation as to the value of the prizes. Standard plants are usually very good at Walton.

The Southampton Show will be held on the 16th and 17th,

Dartford on the 17th, Gravesend on the 17th and 18th, and Bristol on the same date as the last-mentioned. In all bountiful provision is made for Chrysanthemums, the first and the last also representing plants and fruit largely, and fine Shows are expected. On the 17th and 18th ult. the Finsbury Park Amateur Society will hold their first exhibition, which, judging from the influential patronage accorded them, may be expected to be satisfactory. On the same dates the Borough of Hackney Society will hold an exhibition at the Royal Aquarium, Westminster. Liberal prizes are offered, including no less than five silver cups, two being given by the Aquarium Society. The other prizes vary from £2 to 5s., sufficient in most instances to give hopes of a close competition. The Shrewsbury Show will be held on the 18th. The schedule includes classes for fruit as well as Chrysanthemums, the prizes being generally good and the classes "open to all."

The Kingston Society will, it is announced, hold their Exhibitions on the 18th and 19th ult., the schedule including the usual liberal array of prizes. Two timepieces and a watch, value each four guineas, constitute the first prizes in three of the chief classes, but the principal interest of the Exhibition will centre in the competition for the champion challenge vase, value twenty-five guineas. It will be remembered that Mr. Harding, gardener to J. D. Galpin, Esq., Birstal House, Putney Heath, was the winner last year, followed by Mr. Moorman, gardener to Miss Christy, Coombe Bank, Kingston; and Mr. McPherson, gardener to S. Page, Esq., St. Leonard's Lodge, Surbiton. That the competition will be as close this year is confidently expected. The Croydon Show will take place on the 19th and 20th ult., but there is nothing in the schedule to call for special notice. The Maidstone Chrysanthemum and Fruit Society will hold their Exhibition on the 19th ult. Thirteen classes are devoted to Chrysanthemums and nine to fruit, of which the display is sure to be very good. Three silver cups are offered in the former classes, one being valued at ten guineas, in an open class for thirty-six blooms of incurved large-flowered varieties. This will no doubt induce good competition. The Liverpool Horticultural Association will hold their first Exhibition of Chrysanthemums, fruits, &c., on the 23rd and 24th ult. Liberal prizes are offered, and a satisfactory exhibition may be expected. The success of the Chrysanthemum Show at Richmond last year has induced the Society to hold another this year, which will take place on the same dates as the Liverpool Show. The Northampton Chrysanthemum Society will hold their Exhibition on the same date as the above. Four cups are offered valued at three guineas each. The Show last year was an excellent one. The latest Show of which we have any information is that of the Birmingham Society, which takes place on the 24th and 25th ult. Provision is made for the exhibition of plants, fruit, and flowers, in addition to the Chrysanthemums. Among the latter the chief class is for nine specimens (which are usually very fine at Birmingham), the first prize being a silver cup value £5.

Such is a brief review of what may be regarded as the chief items of interest to the grower or exhibitor of Chrysanthemums as regards the schedules of the Societies, and indicates what may be expected to be the most important points in the forthcoming contests.

TRANSPLANTING FRUIT TREES.

THE present is the best time in the year to transplant fruit trees. About this time last year I shifted some hundreds, and all of them have done well since, although some of them might have been thought too old to be transplanted successfully. Indeed some were quite past bearing fruit, and they were shifted with the view of putting fresh life into them, and this has been done to a great extent. Trees of many kinds of fruits were so treated, such as Peaches, Apricots, Plums, Cherries, Apples, Pears, Gooseberries, and Currants.

Before beginning to shift a tree a large heap of soil was prepared as fresh material for the roots. This consisted of good loam and lime rubbish, with a little decayed cow dung for the Peach trees; loam and dung for the others; and a stronger mixture still for the Gooseberries and Currants. To the loam for the whole of them was added a good quantity of road scrapings, which contained horse droppings and lime, as the roads about here are formed of limestone, a material which may be used with advantage for all fruit trees. I do not give any exact proportion of the material, as in this I am always guided by the quality of the loam or health of the trees. This, I think, is best, as soils and situations differ so much that we must be our own guides in such matters. In wet soils and low situations draining material should be at hand. Broken bricks are most suitable, but failing them rough ashes answer the purpose well. When it can be managed the

trees should not be replaced on the precise spot where they have been growing previously, but a few feet or yards from it. This allows the hole to be made and the site prepared before disturbing the tree, and it may then be transferred to its new quarters without loss of time.

In planting a tree an attempt should always be made to raise it above the ordinary level of the ground. This is one of the great secrets in successful fruit-tree culture. Plant a tree deep and all hope of its doing well may be abandoned. Many fruit trees become cankered, defective in growth, and unfruitful owing to their being planted too deeply. The holes should be made of a size proportionate to the dimensions of the tree. No hole should, however, be less than 6 feet square. The soil must be taken out to the depth of 3 feet at the least, and then 18 inches of drainage should be placed in. Over this put turves grassy side downwards, and then fill up to the level of the ground with the soil which has been prepared for planting. It should be beaten or trodden quite firmly, and then it is ready for the reception of the roots.

In lifting the trees a trench should be thrown out all round some 2 or 3 feet from them. The soil may then be gradually removed from the roots, digging inwards and under with a fork, and all the thick fibreless roots can be cut well in with a sharp knife. A small ball of roots and soil must be retained round the base of the stem, and in this form it should be placed on the new ground. More of the fresh soil should then be worked amongst the roots, afterwards adding plenty of it all round so as to form a firm compact mound. This should all be done when the soil is dry and in good working order, when it can be trodden firmly round the tree. As the planting of each tree is finished a strong stake may be driven into the soil a few inches from the stem, and some part of the branches or stem must be made secure to this by means of a strong hay or straw rope. Until the roots have taken firm hold of the soil the wind must be prevented from shifting the roots in any way. This must be observed most particularly, as no tree that is newly planted will thrive if the wind disturbs it. To finish operations about 3 inches of half-decayed manure can be spread over the mound, and may be allowed to remain on until it has decayed into the soil.

These remarks apply to all fruit trees, but of course those planted against the walls require no stakes to support them. Few roots will be made after this time until the spring. Trees transplanted now should not be pruned until January or February, but where very large trees are transplanted some of the largest of the branches may be taken off. As a rule large trees are better cut-in when they are shifted, as the young growth they make afterwards is fruitful and satisfactory. The result of this work will be shown a little in the next season, but it is in subsequent years that it will be most apparent, when healthy growth of a moderately strong character and plenty of fruit buds will well repay all outlay.

As illustrating the good results which follow such work I may say that I have some very handsome standard Cherry trees in the garden. For years previous to this season they have made an enormous amount of wood, and never matured any fruit. Last autumn I had them lifted and replanted in the manner indicated above. Last season they bloomed freely, set and ripened more fruit than they had done for years, and all the wood they have made this season are only little spurs of the fine fruit buds.

The stations for Gooseberry and Currant bushes do not require to be so carefully made as for other trees. Plenty of manure and no drainage suits them. Out of many scores of bushes shifted last autumn I did not lose half a dozen. Many were very old, and yet this season they fruited remarkably well.—A KITCHEN GARDENER.

ADIANTUM CAPILLUS-VENERIS VAR. CORNUBIENSE.

OF the five or six forms of *Adiantum Capillus-Veneris* none exceeds in beauty the remarkably elegant variety here illustrated (fig. a), which bears a nearer resemblance to that handsome Maidenhair Fern, *A. farleyense*, than any other hardy Fern. It was found near the cutting of the St. Ives (Cornwall) railway about 1874 by Mr. Trevithick, and named *A. Capillus-Veneris* var. *cornubiense* by J. Tyerman, Esq., of Tregony. At first it was supposed to be a two-year-old seedling of the typical species (the fertile and sterile pinules of the species, *A. Capillus-Veneris*, being represented at b in the engraving) which is found at Tintagel, which, however, never produces fronds the same size the third year or afterwards as it does the second year, whereas this is constant to its size. Too much cannot be said in favour of this grand acquisition to our hardy Ferns. The pinules are nearly palmate, very deeply cut, sometimes into twelve or thirteen

segments, quite barren, therefore it can only be propagated by rhizomes. The stipes are 3 to 4 inches long. The finest specimen in Cornwall, and perhaps in England, was shown at the Penzance Exhibition, grown by Mr. George Maddern, gardener to E. Bolitho, Esq., Trewidden, which measured quite 3 feet in diameter. It is of drooping habit, and if grown in a pan will soon cover it all round. The specimen from which the accompanying engraving

was prepared was given me by Mr. J. G. Mitchinson, and Mr. F. W. Burbidge was kind enough to make a sketch of it.

Another very desirable variety is *A. Capillus-Veneris* var. *magnificum* (Lee). The fronds of this useful and attractive Fern are much larger than those of the species, being from 12 to 15 inches long by 4 inches broad, and, like those of *cornubiense*, are gracefully curved; but the pinnules are not so deeply cut, as



Fig. 75.—*ADIANTUM CAPILLUS-VENERIS* VAR. *CORNUBIENSE*.

can be seen by fig. *c*. Another well-known form is *A. C.-V.* var. *daphnites*. This differs in a very remarkable degree from all other varieties; the pinnules of each of the branches are confluent (united), and the apex of the rachis dilated, spreading out the pinnules into a crest-like crispy mass. The stipes are ebony-coloured. It is not very unlike *Adiantum Luddemanianum*.

A. Capillus-Veneris var. *minus* is a very pretty form. The pinnules are not larger than the species but much prettier, measuring

sometimes 18 inches from the bottom of the stipe to the apex of the frond. The sori are brownish, sometimes two but usually three on a pinnule. There are two more varieties—namely, *A. C.-V.* var. *undulatum* and *A. C.-V.* var. *incisum*, both of which I am unacquainted with.—WILLIAM ROBERTS, *Penzance*.

LIFTING UNRIPE POTATOES.—I am much obliged to Mr. Luckhurst for replying to my notes on this subject. I did not,

however, intend to make any accusation against the wisdom of his method. I wrote simply with the object of stating my failure in my endeavour to follow him, hoping that some of your readers would set me right. I now see plainly that lifting the tubers while still growing is entirely contrary to Mr. Luckhurst's plan. Let us try to turn all our failures and the advice offered to us to good account in 1881, and thereby give this vegetable the care and importance it deserves.—A. K. B.

THE EFFECTS OF SNOW IN OCTOBER.

A NOTICE of some of the destructive effects of the heavy fall of snow that occurred on the night of the 19th and morning of the 20th of October, will not be out of place in the pages of the *Journal of Horticulture*, which has so often treated with great ability the subject of landscape gardening. In the wooded district from which I write, at an altitude of from 500 to 800 feet above the sea, we could look down, on the afternoon of the former day, upon the broad expanse of the Wealds of Surrey and Sussex covered with Oak trees and pastures. Everything was green and summer-like, for none of the leaves had fallen or even changed colour.

The next morning all this was hidden in snow, which was still falling thickly, and with us attained a depth, in places where it had not drifted, of 3 inches. Throughout the day the ominous creaking and crashing on all sides of us told of the splitting and fall of many a heavy branch, dismembering and disfiguring for ever the trees to which they belonged. The Oaks were the chief, if not the only sufferers. Heavily laden already with foliage and a more than usually great crop of acorns, the further weight of 3 inches of snow, which clung tenaciously to the whole surface of the trees, became to them much more than the last straw upon the camel's back. Sturdy branches that looked the type of strength and endurance were broken, twisted, and borne to the ground, much as some delicate plant might have been. The Oaks that were most injured were the broad-spreading symmetrical trees. One such tree, an object of interest, almost of affection to us all, is so crumpled and crushed that it looks as if some giant of our childhood days, all too heavy, had sat down upon it. We can now only hope that what our trees have lost in symmetry they will gain in picturesque effect. Elm trees have lost a few branches, Ash trees still fewer, and Beeches, of which there are some fine specimens about here, are unscathed. With regard to Conifers, although there are great numbers of Scotch Firs and Larch near us, I have not observed that they are damaged, and the same may be said of many other kinds of Conifers which are used for the decoration of lawns and grounds.

Within twenty-four hours from the commencement of its fall the snow was in great measure gone, and the earth again looked green, in remarkable contrast with its recent appearance. It has been stated that fifty years have elapsed since the occurrence of a heavy fall in snow in the south of England; but I am informed by a friend that many Oaks and other trees in this neighbourhood were greatly injured, whilst still in full leaf, by a heavy snowfall only twenty years ago.

It was interesting to observe how completely surprised the swallows must have been by the snow. I saw several of these birds skimming the snow over and over again in a vain search, I presume, for insects. The next day not one of the birds was to be seen, so little preparation in the way of arranging was necessary previous to their departure for the season to a warmer climate.—A SURREY PHYSICIAN.

AT 4 A.M. on Wednesday the 20th inst. a shower of fine hard snow commenced falling; this continued for about two hours, when large flakes came down thickly and continued falling till mid-day. Most of the deciduous trees still retain their foliage, upon which the snow gathered so heavily that the effect was most disastrous. Never have I seen or heard anything like it. After daybreak for some hours it was like a battlefield; reports followed each other in quick succession, occasionally merging into a regular volley, and down came the boughs crashing among the undergrowth, and spreading destruction on all sides. The Oaks suffered most, many trees having the entire head crippled, the whole of the branches being broken partly asunder and remain hanging down in most melancholy guise. Hundreds of others have lost some branches, so that many fine trees are hopelessly disfigured. The Beeches escaped with comparatively little harm owing to the fact of the more erect disposal of their branches, and the leaves had fallen off many of the upper branches. So fast fell the snow that it was only by repeatedly shaking it off the shrubs with poles that they were saved from permanent injury. A sharp frost followed on Wednesday night, covering the pools with ice and

nipping any tender growth left bare of snow. The frost did not continue, the snow gradually melted, and by Friday it had disappeared, but the lamentable evidence of its presence will long remain.—EDWARD LUCKHURST.

THE POTATO DISEASE AND RAINFALL.

WHILE I cannot, like a certain author, write "for ever" on the Potato disease, I desire to refer to a sentence in the letter of "AMATEUR, Cirencester," on page 370 in his reply to "INTERLOPER"—namely, "there are many other little difficulties against the excessive rainfall theory." Against any "little difficulty" I will adduce one great fact that I challenge your correspondent to disprove. It is this: In Lincolnshire when the rainfall is slight between April and October there is little or no disease, but when it is excessive the disease has ruined the crops. This has been uniformly the case. Never during a dry summer has the disease been prevalent, and never in a wet one has it been absent during the past thirty-five years. Any trifling exceptions to the contrary, such as recorded instances of the disease occurring under glass, are "trifling" indeed, and can have no weight against the one great actual fact adduced, which no amount of argument can explain away. I confine my remarks to Lincolnshire, and if the rain has a different effect in Gloucestershire, "AMATEUR," who appears fond of "theory," will no doubt be able to explain the reason. All experience proves that wet and muggy weather combined with a high temperature is favourable to the germination and growth of the Potato-destroying fungus, any theory to the contrary notwithstanding.—A LINCOLNSHIRE POTATO-GROWER.

GRAPES SHANKING.

WITH healthy growth and the "leaves quite green" in November it will be conceded that the wood of such Vines afterwards would not be extra ripe. As a somewhat similar question to asking why Grapes shank, it may be inquired, Why do Apples fall when half grown? and is it necessary to seek for the reasons during the fruiting year? My contention is that it is not. I contend that the constitution of all fruit is formed by heat natural or artificial during the previous year. Already the fruit bud to provide fruit for next season is either perfect or imperfect, and, in the north at least, materially will remain so. The Vine bud if unripe next year will develop into tendrils, bunches badly set, bunches with stoneless berries, or I maintain bunches the berries of which will shank.

Regarding the shanking of the Gros Colman Grapes that has been alluded to, I have some this year quite similar, and which I expected would shank, and in fact said so many times last winter. This is more especially a peculiar failing of the Gros Colman Grape. When the wood is imperfectly ripened the fruit sets comparatively well, stones well, but under such circumstances portions of some of the bunches shank. It is no argument that all do not shank, any more than it is that all Apple buds are ill developed, some not coming to maturity. In ripening, some fruit buds always take the lead.

I will advance a circumstance that I contend materially strengthens my argument, and which any of your readers who choose may see. This spring, having a few young canes of Gros Colman left unsold, instead of cutting them down I determined to fruit them, and now two of them are carrying eight bunches without a shanked berry. The berries are not so large as those on the permanent Vines, but the bunches are very good. Why is this difference? I think it is plain. Both the established and the young canes were grown up to October without fire heat, and except some being in pots they had exactly the same treatment, but the canes of the established Vines were three times the thickness of those in the pots, and consequently required more heat to ripen them, which they did not have. None of the other Grapes in the house have been shanked, and all alike have carried a light crop. I do not contend that other canes will not produce shanking, there is no necessity to do so, and, moreover, imperfect fruit buds are quite as likely to result from unhealthy Vines grown in undrained sour borders as they are to result from strong-growing healthy Vines, but which lack sufficient or proportionate heat. With well-ripened Vines, reasonable cropping and reasonable attention regarding Grapes, gardeners may sleep soundly.—JOSEPH WITHERSPOON, *Red Rose Vineries, Chester-le-Street*.

AUTOMATIC MOVEMENTS OF A FERN.—Dr. Asa Gray says:—Mr. E. J. Loomis of the Nautical Almanac Office, Washington, recently showed me a phenomenon which I suppose has never before been noticed, and which is commended to the attention of

botanists. A tuft of *Asplenium Trichomanes* gathered last autumn in the mountains of Virginia is growing in his house in a glass dish. About two months ago he noticed that one of the fronds—a rather short and erect one, which is now showing fructification—made quick movements alternately back and forth in the plane of the frond through from 20° to 40° whenever the vessel was brought from its shaded situation into sunlight or bright daylight. The movement was more extensive and rapid when the frond was younger. When I saw it on the 23rd of January its compass was within 15° , and was about as rapid as that of the leaflets of *Desmodium gyrans*. It was more rapid than the second hand of a watch, but with occasional stops in the course of each half vibration. This was in full daylight, next a window, but not in sunshine. No movement had been observed in the other fronds, which were all sterile and reclining, with the exception of a single one which was just unfolding, in which Mr. Loomis thinks he has detected incipient motion of the same kind.—(*Science Gossip*.)

FUNGI A RESULT, NOT A CAUSE OF DISEASE.

"S." appears to object to my positive statements. Have I not ample reason for being positive? Had I propounded a series of fanciful theories, and endeavoured to bolster them up by quoting the opinions of others, an apology would have been due to yourselves and your readers; but every statement of moment was supported by examples or facts derived from actual experience, and advanced, not merely for getting the best of an argument, but for the benefit of "gardeners and gardening." My "long and close observation about legitimate growth and legitimate functions having ceased before the disease attacks the Potato plant" not only will establish my case, but has already done so for fully fifteen years, for during all that time has it enabled me to save the crop with the exception of last year and one or two other seasons of untimely heavy rain. All who have adopted this invaluable method of avoiding loss from disease are aware of the difficulty of knowing to a day when the legitimate growth has ceased, and how easily a superficial observer may be deceived. "But," he will say, "how can I be deceived? Have I not had the clearest evidence before my eyes? Was not the haulm quite green and in full vigour when the plague spot appeared and spread over it with such rapidity?" Yes; but there was a cessation of growth, it may be of one or several days' duration, and it is then that I and "A NORTHERN GARDENER" and many more throw aside our pens and our coats and set to with a will to save the crop. This year once more all the Potatoes—early, intermediate, and late sorts—were lifted while the haulm was quite green, fresh, and unblemished, and no argument of "S." can upset the fact of my store sheds being full to overflowing with dry sound tubers. Talk of positive statements, what does "S." think of "A NORTHERN GARDENER'S" acquaintance who has adopted early lifting for forty years without a failure?

"S." wisely avoids any attempt to explain away the remarkable cure of blister in the Dr. Hogg Peach tree which I cited in my last note on this subject. That fine tree, and its abundant crops of excellent fruit since it has had no blister, is another of my facts which enables me to be positive. No doubt Peach blister has repeatedly occurred upon trees in houses, but it is invariably owing to faulty glazing or careless manipulation of ventilators. If anyone doubts this let them throw open a ventilator next spring when the foliage is young and tender and a strong wind is blowing from the north-east, and they will soon have positive evidence of its scathing power, as I had before dearly bought experience taught me better. Some twelve or thirteen years ago a remarkable example of the baneful effects of cold wind upon tender vegetation came under my notice. In a viney all along the top of the house immediately under the ventilators the Grapes were badly affected by rust, while lower down they were almost free of it. I was consulted about the matter, and upon asking about the ventilators was told they had been opened daily, notwithstanding the prevalence of cold wind. My advice as to the exercise of caution about opening the ventilators was acted upon in the following spring, and there was no more rust.—EDWARD LUCKHURST.

PORTRAITS OF NEW AND NOTABLE PLANTS.

SALVIA HIANIS.—*Nat. ord.*, Labiatae. "A very handsome perennial, of which seeds collected in Kashmir were sent to Kew by Dr. Aitchison in 1877. He describes it as growing profusely in grassy marshes, at elevations of from 8,500 to 11,000 feet, and flowering in July and August. It was first found by Royle's collectors, sent from the Saharunpore Gardens to Kashmir, and

flowered at the Royal Horticultural Society's Gardens in 1840, whence the figure in the 'Botanical Register' was made; but neither this figure nor Royle's gives any idea of the intense sapphire-blue of the corolla. It has also been collected in Kashmir by Jacquemont and Falconer, and, as one of the most beautiful plants of that botanically rich valley, it can hardly escape the notice of future collectors. Dr. Lindley describes it as "one of the gayest of our perennials, in consequence of the striking contrast between the white and blue of its large flowers." The plant flowered in the herbaceous grounds at Kew in June of the present year."—(*Bot. Mag. t. 6517*.)

TULIPA BIFLORA, *TULIPA ILIENSIS*.—"T. biflora has been long known, but is very seldom seen in cultivation. It is spread from the Volga through the western half of Siberia. It is notable in the genus for producing normally more than a single flower. It has a woolly bulb, like *montana*, but otherwise its affinity is with *sylvestris* and *australis*. The drawing was made from a plant sent by Mr. George Maw from his garden at Broseley. T. iliensis is one of the numerous new species that have lately been discovered by the Russian explorers in Central Asia. Its alliance is close with T. triphylla, 'Bot. Mag.' tab. 6549. In their flowers and leaves these two resemble *australis*, but the stamens are like those of *Gesneriana*. The drawing was made from a plant sent by Mr. F. W. Burbidge, which flowered in the garden of Trinity College, Dublin, last February."—(*Ibid.*, t. 6518.)

ALOE GREENII.—"This is a well-marked new species of Aloe of the group *Pictæ*, which we have for some time cultivated at Kew. It was received under the name from Mr. Wilson Saunders, and this name was given to it by Mr. T. Cooper, but that it is not one of the plants which the latter collected in his travels in Cape Colony, which yielded so many interesting discoveries in this set of plants."—(*Ibid.*, t. 6520.)

STELIS BRUCKMULLERI.—Probably a native of the Mexican Andes. "This singular little Orchid resembles the green-flowered *Stelis ophioglossoides* of Swartz, a West Indian plant, figured in the 'Botanical Register' (tab. 935), but has smaller leaves and flowers, and the latter are of a purple colour and hairy inside; the bracts too are different, those of the species here figured resembling funnel-shaped cups with very oblique mouths. Like all the other species of the genus, it is of botanical interest rather than horticultural."—(*Ibid.*, t. 6521.)

LATHYRUS ROTUNDIFOLIUS.—"This very beautiful plant has been long cultivated in England, though when and how introduced is not certain. It is not described in Aiton's 'Hortus Kewensis,' nor, up to this time, cultivated at Kew; it is not included in Le Maout and Decaisne's 'Flore Elementaire des Jardins et des Champs,' which is the fullest work of the kind known to me, nor do I find it in the more accessible works devoted to English out-of-door gardening; yet I observed it last summer growing in the gardener's cottage at Lytchett, and it probably occurs elsewhere, though overlooked as too like an Everlasting Pea to be worth notice. Nevertheless it is one of the most charming plants of its kind, perfectly hardy, a free flowerer, and for the brilliancy and delicacy of its rose-coloured flowers it ought to be a favourite. Like its near ally, the Everlasting Pea, it is scentless. L. rotundifolius has a wide range; we have examined specimens in the herbarium from Roumelia, the Crimea, Asia Minor, and the Caucasus, and according to Boissier it extends eastwards to Northern Persia."—(*Ibid.*, t. 6522.)



KITCHEN GARDEN.

THE weather is now such that it is unwise to postpone protecting or lifting plants that require it. Lettuce and Endive should be lifted at once, as the keeping qualities are much deteriorated when the midribs are injured by frost. The plants must be lifted with a small ball of earth attached to each, and be placed in moist soil in frames, pits, or houses, and with ordinary attention to ventilation they will keep in good condition a long time. Too much ventilation cannot be given in mild weather, and in case of frost the coverings must be sufficiently thick to exclude it. Endive will require to be tied up or covered with some material to ensure its blanching. Celery if left too much exposed will be damaged by frost, and must not only be well earthed up but have some dry litter placed over the plants.

in severe weather. Beet is impatient of frost, and should be taken up at once. In lifting and trimming be careful to avoid injuring the roots, otherwise the colour will be spoiled. To keep Beet fresh and sound until the next year's supply comes into use it should be buried beneath the surface of the soil in a cool shaded place, being covered with a little straw and soil. That for winter use can be placed in damp sand in the root house. Roots of Carrots, Salsafy, Scorzonera, and a portion of the Parsnips should be taken up and stored for winter use. Avoid trimming these too closely, placing them in narrow piles in moist sand. Take up Cauliflowers that have heads about the size of a breakfast cup, and lay them in moist soil or ashes in a frame or pit, and protect from frost, ventilating freely in favourable weather. They will afford a good supply of heads for cutting.

Complete the planting-out of Lettuce and Cabbage as soon as possible, and finish pricking out Cauliflower plants from seed beds, planting or pricking out some at the base of a south wall, particularly of the Walcheren variety, which in an ordinary season withstand frost, and are well hardened for planting out early in spring. Remove all decayed leaves from Broccoli, Brussels Sprouts, and winter greens, so as to expose and harden them as much as possible.

Frame Ground.—While the weather continues open fully expose Cauliflowers, Lettuces, Endive, and Radishes in frames, withdrawing the lights when the temperature outside is above 35°. Lettuces and Endive should be protected from heavy rains by placing the lights on, but tilting them back and front.

FRUIT HOUSES.

Pines.—Afford fruiting plants the temperature and treatment indicated in our last calendar, but in adverse weather a reduction of about 5° should be made. The fruit now appearing will be ripe when other kinds of fruit are scarce; such plants, therefore, should be afforded a good position in the fruiting department. During flowering the fruit should not be wetted. Queens do not, as a rule, start into fruit so readily as some varieties, but they may be assisted by resting the plants after they have made a growth for six or eight weeks. Plants intended to produce fruit early in the year must be treated accordingly, the temperature of the bed being allowed to gradually fall to 70°, and that of the house to 65° by day and 60° at night. Cease damping houses that are naturally moist, watering the plants only when absolutely necessary, which will not often be needed by those in fermenting beds. Ventilate at 70°, doing so liberally above that degree. Keep the lights of all Pine structures free from whatever may obstruct light.

Cucumbers.—The autumn-fruiting plants will now be in bearing, and should have a night temperature of 70°, falling to 65° in the morning, 75° by day, and 80° to 85° from sun heat. Admit a little air at the top of the house on every favourable opportunity; but it must not be done with a view to lower the temperature, but to permit the escape of vitiated air, and secure a sweet healthy atmosphere. Avoid cold currents of air, counteracting the necessity for much ventilation on account of the sun by shutting off the top heat for a few hours in the middle of the day. Avoid also sudden fluctuations of temperature, taking care that the water and soil applied to the roots are about the same temperature as the house. Cease syringing the foliage, or do it only in the early part of bright afternoons, keeping the evaporation troughs regularly charged with liquid manure. Damp the paths and walls morning and afternoon. If worms are troublesome dispel them by weak doses of lime or soot water, dusting the foliage with sulphur upon the first appearance of mildew.

PLANT HOUSES.

Heaths.—Plants potted last month will now be rooting in the soil, as when in good health they root freely at this season. Care will be required in watering; closely examine them before supplying it. Ventilate moderately day and night when there is no apprehension of frost. The plants should be kept as cool as possible without being subjected to frost, leaving the roof lights open so long as there is no danger of too great a depression of temperature. The plants can now be tied, commencing with the earliest-flowering kinds. The dead foliage must be removed from the wood, the plants being laid on their sides for that purpose, removing the old stakes carefully,

and inserting the new stakes in the same holes, so as to damage as few of the roots as possible. In tying secure green leafy shoots down to the surface of the pots. Winter-flowering Heaths coming into bloom must have a light airy situation and not be overcrowded.

Azaleas.—To have these plants flowering well and long during the spring months it is requisite that they be started into growth at different times. Plants intended for flowering late in the spring must not have their growth completed early in the autumn, or the consequence is they flower too early. Plants that have been latest in making their growth will not yet have their buds fully matured, and should be aided by a little fire heat, for whether Azaleas are early or late in starting into growth, they should always be kept in a moist warm temperature until the buds are prominent, large, and firm. The growth, from being arrested as soon as the buds are perceptible, is certain to have an effect upon the flowering, the plants never producing flowers half so well or so fine as plants which have had the bloom buds fully matured the previous season. Plants set apart for decorative or exhibition purposes should now be tied into form. A rounded cone is perhaps the best, with the height half as much more as the diameter of the plant at its base, which should always be the widest, as when Azaleas reach a considerable size they do not bloom regularly all over but at the top first, which is a result of the base not being wide enough or the strongest shoots being trained to the top of the plant instead of being kept at the base. Specimens flowering irregularly must be untied and have the thickest branches brought well down, leaving the weaker to form the head. The early-flowering Azalea *vittata elegans*, white with red edgings, is but seldom met with, which is the more remarkable, as it commences flowering shortly in a temperature a little warmer than an ordinary greenhouse, flowering consecutively for several weeks. Started into growth and the buds set early it will flower in September. Some of the earliest varieties, if their growth has been well managed, can now be placed in gentle heat, and not being excited by a high temperature their flowers will be enhanced in value for cutting. Alba, amoena, Borsig, Fielder's White, and Narcissiflora are the best for forcing.

Roses of the Tea and China varieties that were cut back and potted in spring after flowering, and have since then been plunged outdoors, will now be full of flower buds, and if placed in a light house with a little heat they will open their flowers. If a number of plants be treated in this way it is not advisable to bring them all into flower at once; but a portion should be placed in a north house, or where they will be kept cool without being too much saturated by the autumn rains. Roses are at no time more acceptable than in autumn, and for affording them none are better than the neglected Chinas from their continuous flowering habit; but to have these and Teas in condition to produce flowers in quantity at this time they must have had liberal treatment through the summer. When they have not been well supplied with liquid manure the blooms they will produce will be few; but being kept free from insects they will afford useful flowers for cutting until January.

Calceolaria seedlings must not be allowed to become crowded in the seed pans, but should be pricked off as soon as they are large enough, and from the pans they can be transferred to small pots before they become drawn, keeping them in all stages near the light, and not where they will be exposed to a dry atmosphere. Three parts of turfy loam, one part of leaf soil, and one of thoroughly decayed dung with a little sand, is a suitable compost.

Rochea falcata when out of flower should have the main stem cut back, and the leaves removed carefully with a sharp knife. Insert them singly in small pots, well drained and filled with sandy peat; or they may be inserted round the sides of 5 or 6-inch pots, and afterwards be transferred when rooted singly to 3-inch pots. They may be placed on a shelf near the glass in a temperature of 50°, where they will soon root, the soil being kept just moist, for if kept wet the leaf cuttings will decay. It is one of the brightest of autumn-flowering plants, and is deserving of more general cultivation.

Chrysanthemums should be under cover, it not being advisable to house them too early, as if the flowers are not well advanced before the plants are placed indoors they are liable to become drawn and affected with mildew. The flower buds should be thinned out when

large enough. Supply the plants with liquid manure, and keep them tied out as required.

Clianthus Dampieri should have a temperature a little higher than an ordinary greenhouse, keeping it near the glass and away from cold currents of air. If the plants are in small pots shift with the ball entire, not even removing the crocks, pressing the soil down carefully. It succeeds best in lumpy peat with an admixture of charcoal.

Cinerarias requiring a shift must be attended to. The second lot may now be transferred to the pots in which they are to bloom. To flower satisfactorily at this season a temperature of 50° is necessary by day artificially. The temperature for the ordinary stock should be kept at 40° to 45° by day artificially, admitting air at the latter, fully at 50°, and closing at that degree. Do not be in a hurry in applying fire heat. In damp weather a little fire heat will be necessary to expel damp, air being admitted freely, but avoid a close warm atmosphere at night, or indeed at any time, as it is injurious to every greenhouse plant at this season. The night temperature should be kept at 40° to 45°, but frost being excluded the safety of the plants is insured. Watering should be done in the morning, and the supply regulated according to the requirements of the plants, keeping them rather dry than too wet.

Bouvardias.—To have the full flowering capabilities of these plants they require in the winter time plenty of heat and light, the temperature 60° to 65° at night, and an increase of 5° to 10° in the day. An application of liquid manure will assist their growth and flowering. Spring-struck plants grown on through the summer are the most suitable, they being now in 7 or 8-inch pots. *Humboldtii corymbiflora* has large white flowers like a *Stephanotis*, the bunches being large. The *Bride* is very fine; *Bridal Wreath*, *candidissima*, *jasminoides*, *longiflora*, and *Vreelandi* are the best whites; *Brilliant*, *elegans*, and *leiantha* are good scarlets; *rosea oculata*, *blush*; *intermedia*, *pink*; *umbellata*, *rosy blush*; and *flava*, *pale yellow*.

NOTES ON VILLA AND SUBURBAN GARDENING.

FLOWER GARDEN.

Filling the Beds for the Winter.—When clearing the beds of their summer occupants all such plants as *Cineraria maritima*, *C. acanthifolia*, *Golden Pyrethrum*, *Golden Thyme*, *Golden Japanese Honey-suckle*, *Stachys lanata*, *Beet* (to be used in common with those small plants saved in the kitchen garden as advised), *Ajuga reptans rubra*, *hardy Sempervivums*, and *Sedums*, and any other hardy kinds, should be carefully saved and worked in afresh. With these may be associated small *Aucubas*, *Thujas*, *variegated Hollies*, *Retinosporas*, *Yuccas*, *variegated Euonymuses*, and other easily-moved and frost-enduring plants. These may be arranged either in groups and rings, or be dotted about the beds according to their respective heights and colours; the above-mentioned bedding plants in the first instance to be used for edgings, and in the latter for a groundwork—that is to say, should fill up the intervening spaces, and also form the edgings. Small shrubs suitable for bedding can be obtained at a cheap rate, and will be available for years, the frequent removals checking luxuriant growth. Much may be done without them, especially if a quantity of *Forget-me-not*, *Limnanthes Douglasii*, *Collinsia bicolor*, *Silenes*, *Wallflowers*, and *Daisies* have been prepared. The *Pyrethrum* is particularly useful, as it can be employed to form designs as in the summer bedding, filling in the outer spaces rather closely with *Ajuga*, *Daisies*, *Stachys*, *Limnanthes*, and *Silenes*, and those spaces nearer the centre with *Beet*, *Collinsia*, *Cineraria*, *Forget-me-not*, and *Wallflowers*. Suitable for dotting are small pieces of *Iris foetidissima variegata*, *golden variegated Lilium caudatum*, and *Yuccas*. The *Pyrethrum* and other bright-coloured plants should be employed as much as possible next to the turf, dull colours failing in effect; yet *Sempervivums* are very suitable for fringing the raised beds.

A good arrangement consists of an edging of *Pyrethrum*, next this *Ajuga*, behind this *Stachys*; the remaining space, however large, consisting of *Forget-me-not*, and dotted among this either the *variegated Iris* or *Tulips*. Another mode may be as follows:—An outer line or ring of *Golden Thyme*, next either red *Daisies*, *Silenes*, or *Beet*; the remaining space being filled with *Cinerarias*, among which may

be dotted either *Hyacinths* or the *Spanish Iris*. A third may consist of a broad edging of either red *Daisies* or *Ajuga*, among which are dotted either *Crocuses* or *Snowdrops*; next another broad band of either *Limnanthes*, *Stachys*, or *pegged-down Cinerarias*, with *Hyacinths* interspersed, filling up the centre or back as the case may be with a groundwork of either *Collinsia*, *Beet*, or dark *Wallflowers*, among which might be dotted either *Narcissuses* or *Tulips*. Many somewhat similar arrangements, if well carried out with good plants and bulbs, should the winter prove of average severity, will eventually prove more effective and pleasing than the summer bedding. Carpet bedding, where the outlines of the designs have been formed with hardy plants, notably the *Pyrethrum*, and the groundwork formed with a hardy plant such as the common *Stonecrop* or *Sedum glaucum*, may easily be made effective by substituting *Ajuga* for the *Alternantheras*, *Beet* for the *Iresines* and other rather tall plants, and the *Stachys* for lighter-coloured medium-height plants. *Iris* (variegated), *Golden Lily*, *Yuccas*, and miniature variegated and *Conifers* are well adapted for “dotting.” With these materials carpet coloured beds for the winter may yet be formed, and will look well from the commencement.

Planting Bulbs.—Readers of this column who intend to plant bulbs extensively are referred to the instructive remarks on the subject by “A STATION MASTER” on page 370 of the Journal. The only objection to beds filled with bulbs as there recommended or otherwise is their bareness during the early part of the winter. This bareness may be obviated by covering the beds with small neat branches of evergreens as the bulbs are placed in. *Variegated Hollies*, *Aucubas*, *Berberises*, and *Ivies* of the tree type are very suitable, and should be arranged in bands and carefully pressed into the soil so as not to injure the bulbs; they will retain their freshness for a long time, and serve to protect the bulbs.

GREENHOUSES.

Potting Bulbs.—In continuation and conclusion of remarks on this subject, commenced on page 379, mention ought not to be omitted of *Amaryllis formosissima*, *Peacock Iris*, *Tropæolum tricolorum*, and *Cyclamen persicum*, as all are included in most advertised collections. The two first may be potted either singly in 4-inch pots, or three can be placed in 6-inch pots. The *Tropæolum* if moderately strong may receive an 8-inch pot, and the *Cyclamen* a 4-inch pot, or still larger if of good size. The bulbs of the first and the fleshy roots of the others should all be about three parts buried in the soil. Care must be taken to pot the tubers of the *Tropæolum* the right way upwards, and also to avoid breaking its delicate thread-like growth when it starts.

After-treatment.—The pots containing the six first-mentioned kinds—viz., *Hyacinths*, *Narcissuses*, *Tulips*, *Crocuses*, and *Snowdrops*, should be placed on a cool dry bottom in the open, and be completely covered to the depth of 5 or 6 inches with either sifted ashes, sawdust, or cocoa-nut fibre, the aim being to have the pots well filled with roots previous to the commencement of any top growth. No watering will be necessary unless the soil employed be very dry. The remainder may be either placed in a cold frame or on a greenhouse shelf, and will require but little water for a time. It may not be out of place to suggest the advisability of purchasing either the general collections as advertised, or collections of different kinds, leaving the selection of varieties to the vendors, as this will be found to be by far the most economical procedure.

TRADE CATALOGUES RECEIVED.

James Veitch & Sons, King's Road, Chelsea.—*Catalogue of Roses, and List of Iris Kämpferi Varieties*.

Charles Turner, The Royal Nurseries, Slough.—*Catalogue of Roses and Fruit Trees*.

Robert Parker, Exotic Nursery, Tooting, Surrey.—*Lists of Pyrethrums and Potentillas*.

Osborn & Son, Fulham, London, S.W.—*Catalogue of Plants, Shrubs, and Trees*.

Ormiston & Renwick, Melrose, Roxburghshire.—*Catalogue of Forest and Ornamental Trees*.

J. Cheal & Sons, Crawley, Sussex.—*Catalogue of Trees and Shrubs*.

Henry Merryweather, The Nurseries, Southwell.—*Catalogue of Fruit Trees*.

TO CORRESPONDENTS.

* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Addresses (A Deal Correspondent).—Write to Messrs. William Paul & Son, The Nurseries, Waltham Cross, Herts. (H. L. B. L. B.).—We are unable to answer your question. If you write to Messrs. T. Green & Sons, Smithfield Iron Works, Leeds, they will perhaps be able to give you the information you require.

Evergreen Screen Plant (Tyne).—There is none equal for your purpose to the Ivy; and *Hedera Regneriana* has fine, large, smooth, deep green foliage.

Large Gooseberries (Idem).—Amongst the largest are Loudon, red; Catharina, yellow; Shiner, green; and Antagonist, white; but if you intend exhibiting it will not be safe to grow one variety only in each section.

Nomenclature (Old Subscriber).—We are obliged by your letter. We took special means to obtain accurate information regarding the Melon, and this we thought was all you needed.

Ferns (S. R. S.).—There is no work specially devoted to the Ferns you mention, but you will find much of the required information in the "Greenhouse Manual," published at this office, price 9d., or post free 10d.

Pears for Wall (R. B.).—The following good varieties usually ripen during December and January:—Glen Moreau, Knight's Monarch, Ne Plus Meuris, Winter Nelis, Zéphirin Grégoire, and Huyshe's Prince of Wales. They will succeed in your district.

Blisters on Willow (W. Begbie).—These blisters or galls are the work of several small flies in the genus *Cecidomyia*. They are gnat-like creatures, and their tiny wings shine with prismatic colouring under a magnifier. But it is not easy to rear them, for they are much infested by a parasitic fly still smaller, the larva of which starves or devours the one that is first tenant of the gall. Finally these galls become lodging places for sundry Acari or mites.

Angle for Vinery (M. M.).—Whether the house be a lean-to or span-roof the best angle for the roof is 45°, but for very early forcing steeper-pitched roofs were formerly employed. The angle must be calculated from the base, or the slope which it makes with the base; the base line and height in the centre of a span or back wall of a lean-to being equal, calculating from the top of the upright side or front lights when the angle of elevation is 45°.

Training Vines in Pots (A Young Gardener).—The canes being intended to be trained spirally around stakes they may be trained before starting, as it will tend to arrest the flow of the sap to the extremities, the point of the cane being kept rather lower than the other part until the eyes have broken along the cane, when it may be elevated. If for a trellis the canes should be depressed until they have the buds well broken, and then be secured to the trellis. Muscat of Alexandria is not a suitable Grape for early forcing, but succeeds if not started before January and afforded plenty of heat.

Keeping Pears and Apples (F. J.).—Your room with trellised shelves will answer for keeping fruit, although there is no means of affording artificial heat, the fruit being laid on clean dry straw and covered with straw in severe weather so as to exclude frost. Do not remove the loose bark on the stems of outdoor Vines until spring, and not then unless it is necessary to dress the rods with a composition to prevent mildew and insects appearing.

Wintering Pelargonium Cuttings (J. B.).—The house in which Roses are forced will not be too warm, providing you can afford the Pelargoniums positions near the glass and ventilators so as to secure sturdy growth; but if they must be kept at a distance from the glass they will become drawn and weakly, and be proportionately deteriorated for bedding. The room without a fire would be most suitable, removing them during severe weather to a kitchen or other place where they would be safe from frost. It would not answer to place them in a cupboard or cellar for any length of time. For the Pelargonium cuttings to succeed they should be placed in a house at this season with a minimum temperature of 55°; failing this you had better not prune the plant until the spring, when the cuttings will strike readily.

Forcing Seakale (Beginner).—You give us no data as to the proposed method of forcing, but we presume it is by dung or other fermenting materials. Take up the plants with all the roots possible, and place them so that about five crowns can be covered with an ordinary Seakale pot. The crowns should be, as grown, level with the surface, and should be placed so as to be covered with fermenting materials by the 1st of December to have heads for cutting at Christmas. If forced in a house the temperature should be 55° to 60°, and introduced at the time named. The best time to topdress an indoor Vine border is as soon as the foliage shows indications of falling. The sooner it is done now the better. Liquid manure should not be given to Vines that have Grapes hanging, nor should it be applied when they are at rest, but during growth.

Hyacinths (Old Subscriber).—If you order the "earliest varieties" pot them at once in 5-inch pots, covering the pots 6 inches in depth with cocoa-nut fibre refuse, leaf soil, or ashes, and when the pots are filled with roots and growth is apparent place them on the shelf of a house having a temperature of 50° to 55°. you will, we think, have the plants in flower by the time required. Winter Aconites require the same treatment as to potting and plunging, but must not be placed in a warm house. The best mode of obtaining good pots of Snowdrops is to take up some established clumps of the single variety, pot them, and grow them on the shelf of a light greenhouse. If you could bury the Hyacinths in a heap of leaves that are very slightly heated the growth would be accelerated, but much heat is dangerous.

Mildew on Roses (E. C.).—You had better prune the plants before you place them in the house or frame, then most or all of the affected leaves will be removed; then paint the stems with sulphur mixed to the consistency of paint with a strong solution of soft soap and a little tobacco water. A little sulphur falling on the soil is not injurious. If your plants when growth commences are regularly syringed with the soft soap solution as recommended by Mr. Barduey they will be kept free from mildew. We have seen a fungus resembling a cobweb spread over the surface of cocoa-nut fibre refuse in a close, damp, slightly heated pit; but in a well-heated propagating house, or when the material is exposed to the air, it is very rare that any fungus is seen on it to do injury. The other subject to which you refer shall have our attention.

Rose for Greenhouse (Bradford Reader).—A *Maréchal Niel* or *Gloire de Dijon* Rose would succeed in your house provided the stem was protected from the heat of the cistern. The soil would need to be good, and copious supplies of water would be required in the inside border. In all probability a Rose would do equally well, and perhaps better, worked on a standard Briar and planted at the back of the house outside, the growth being brought through the wall above the cistern; in that case the stem of the Briar would need protection with haybands. A Vine—Black Hamburgh—would grow as well as a Rose in the inside border, as shown in your sketch, but its stem would need protecting from the excessive heat of the cistern. Cannot you plant in the front of the house and train the Vine up the roof? The Rose may be planted in November, and a Vine may be planted at the same time, but if it is in a pot spring planting is preferable just as the buds are commencing growth.

Overcropping Vines (J. E.).—Overcropping is a relative term. We have seen Vines decidedly overcropped when not bearing more than half a pound of fruit to each foot of rod, while other Vines were not overcropped with three times that weight of fruit. If your Vines are really healthy, with active roots, short-jointed wood, and thick leathery foliage, the crop you name is not by any means heavy. How many rods have you in the space of roof mentioned? If the rods are closer to each other than 3 feet, and the laterals from them are not more than a foot apart, your Vines are overcrowded, and the leaves will not be well developed, as they have not been fully exposed to the sun, nor will the wood be matured. Under these conditions the Vines will not be really healthy, though they may grow luxuriantly, and are therefore not able to perfect their crops. We suspect we have suggested the chief cause of your Grapes not colouring, and the evil would be aggravated by the insufficient ventilation to which you allude.

Myrtle Diseased (Richmond).—The leaves sent to us appear to be injured by the ravages of thrips, though the evidences of their presence are obliterated by washing with water. The leaves of the tree, if at all like those sent, will all fall. Syringe the tree with a solution of 4 ozs. of soft soap dissolved in a gallon of water, to which is added a quarter of a pint of tobacco water. The tree being thoroughly wetted, both on the under and upper side of the leaves, allow the mixture to become dry upon the tree, and then wash it off with water at a temperature of 120°. In a week repeat the washing or syringing with the tobacco water and soft soap solution, and syringe the tree twice a day afterwards for a week or ten days with water, keeping the soil no more than moist, as the demands of the head will be at a minimum, and avoid a wet state of the soil through the winter.

Tomatoes for a Cool House (R. G. M.).—With us as with you, Hathaway's Excelsior proves a somewhat lighter cropper than either Dwarf Orange-field or the Old Red, but the fruits are of better appearance and superior quality. As you prefer weight to fine quality and shape you will certainly do well to either grow more of the above older varieties, or to add Earley's Defiance and a few for trial of Conqueror. Earley's is apparently a good selection of Large Red (or as you have it Old Red), and is a heavy cropping variety, very suitable for a cool house. The colour of the Conqueror is a glossy vermilion, in the way of but superior to that of Acme and Vick's Criterion, neither of which were liked in the markets at one time. This prejudice may by this time have been overcome, at all events the Conqueror is of the three the most likely to effect this favourable change of opinion. It is certainly a heavily-cropping, easily-grown, early variety.

Seeds for Garden (W. W.).—Your question as put is almost unanswerable, as so much depends on the nature of the soil and the system of culture pursued. Perhaps the following table of "seeds required for a garden of 1 acre," extracted from the *Gardeners' Year Book*, will be of service to you; the quantities can be increased or diminished according to the extent of ground at your disposal:—Peas, 5 quarts; Beans, 2 quarts; Kidney Beans, 1 pint; Scarlet Runners, 1 pint; Cabbage, early, 2 ozs.; Savoy, 1 oz.; Brussels Sprouts, 1 oz.; Cauliflower, 1 oz. in two varieties; Broccoli, 2 ozs. in four varieties; Borecole, 2 ozs.; Cabbage, Red, ½ oz.; Kohl Rabi, ½ oz.; Onions, 4 ozs.; Carrots, 2 ozs.; Turnips, White, 2 ozs.; Turnips, Yellow, 1 oz.; Celery, ½ oz.; Spinach, ½ pint; Beet, Red, 1 oz.; Beet, Silver, ½ oz.; Leek, 1 oz.; Parsnip, 2 ozs.; Salsafy, ½ oz.; Skirret, ½ oz.; Scorzonera, ½ oz.; Endive, 1 oz.; Lettuce, 2 ozs. in two varieties; Radish, Long, ½ pint; Radish, Turnip, ½ pint; Mustard, ½ pint; Cress, ½ pint; Parsley, curled, ½ oz.; Potatoes, early, in two sorts, 1½ bushel; Potatoes, late, in two sorts, 2 bushels; Jerusalem Artichokes, 1 gallow; Garlic, ½ lb.; Shallots, 1 lb.; Sweet and Pot Herbs, of sorts, 1 oz.; Rhubarb, of sorts, 25 roots. To the above add one packet of each of the decorative and garnishing plants you name in your list.

Apples for Market (P. Gruel).—In reply to your request for names of "two hundred late sorts of dessert and kitchen Apples of good size and appearance, in use from October to May for market purposes," our reply is that we decline the responsibility of recommending anyone to plant so many varieties for the purpose in question. We presume you want two hundred trees, but you do not say so, and you could not possibly make a greater mistake than to plant so many varieties. Instead of naming two hundred we name fifty varieties, thirty for culinary and twenty for dessert purposes, that are likely to be profitable; but if we were planting as many trees as you propose we should not include more than half the varieties here named, or at least should only have one tree each of many of them to prove their adaptability to the soil and district. The first half or two-thirds of the varieties named in each section are the most likely to prove satisfactory, and those we should plant in the greatest numbers. **Dessert.**—Cox's Orange Pippin, King of the Pippins, (Golden Winter Pearmain), Golden Reinette, Scarlet Nonpareil, Court Pendu Plat, Scarlet Pearmain, Barcelona Pearmain, Lodgemore Pearmain, Baxter's Pearmain, Wanstead, Sturmer Pippin, Nonpareil, Dutch Mignonne, Herefordshire (Royal) Pearmain, Aromatic Russet, Claygate Pearmain, Winter Pearmain, Scarlet Crofton, Melon Apple, and Mannington's Pearmain. Many good dessert Apples are very small, but the above possess either size, colour, or quality in combination with free-bearing properties. **Culinary Apples.**—Warner's King, Dumelow's Seedling (sold as Wellington in the south), Beauty of Kent, Ecklinville Seedling, Alfriston, Stirling Castle, Round Winter Nonsuch, Striped Beefing, Brabant Bellefleur, Gooseberry Apple (grown largely for the Loudon market), Fearn's Pippin,

Mère de Menage, Loddington Seedling, Waltham Abbey Seedling, Norfolk Bearer, Frogmore Prolific, Northern Greening, Kentish Fillbasket, Gloria Mundi, Castle Major, Tower of Glammis, Rymer, Sleeping Beauty, Yorkshire Greening, Forge, Bedfordshire Foundling, Winter Greening, Winter Codlin, Lady Henniker, and Cobham.

Cucumbers and Tomatoes (C. S.).—Your two long span-roofed houses with ordinarily skilful treatment ought to be remunerative whether the crops grown be either Cucumbers or Tomatoes. We are inclined to think you have an insufficiency of bottom heat for very early, and in fact the main crop of Cucumbers, as there ought at least to have been two pipes—say a flow and return. Taking all things into consideration, we should advise the planting of the warmest side of one house before the Tomato plants are much rootbound, and thereby receive a severe check. Any surplus plants may be fruited profitably, either singly or in pairs, in 12-inch pots; stake the plants and place them on the opposite side of the house till the space is wanted for plants obtained from a January sowing, by which time a crop will be set on them, and failing a better position may then be placed on your wide pathway to ripen. If there is any difference devote the warmest house to the Cucumbers, and plant the warmest side of this with January-raised seedlings, and when these are well established raise more plants for the opposite side. The latest planted in both instances will very probably be found most profitable “in the long run,” as the growth will be stronger and cleaner owing to the increase of solar heat (which ought to be taken advantage of by closing early), and a corresponding decrease in artificial heat. If cropped and treated rationally the plants ought to continue bearing till far into the summer. We should, however, advise you to raise another batch of plants of both Cucumbers and Tomatoes to follow those first planted, as being more likely to produce heavier and superior crops to those usually obtained from renovated old plants. When preparing your pits for either kind first fill the bottom so as to quite bury the pipes with broken bricks or something similar, over these place a layer of turves grass downwards, and failing this substitute rough and rather fresh stable manure; on this place mounds of rough and rich turfy soil 3 feet apart for Cucumbers, and a ridge of similar soil for Tomatoes, a plant of the former to each mound. The earliest Tomatoes may be planted 15 inches apart, and the more vigorous successional plants 18 inches apart. In all instances topdress frequently with rich rough soil; water often, sometimes with liquid manure, and always of the temperature of the house; attend well to the disbudding of the Tomatoes and the stopping of the Cucumbers, and avoid heavy cropping. When replanting all fresh soil need not of necessity be used, but it is advisable to work in some, and also a sprinkling of one of the artificial manures as advertised; sprinklings of the latter may with advantage be substituted for the liquid manure providing it is not used to excess. Early Tomatoes will do well in a temperature of from 60° to 65° by night, increased to 70° to 75° by day; and if any difficulty is experienced in setting a crop maintain a drier atmosphere for a few days, open the top ventilators early, and when the pollen is dry, which would be towards mid-day, lightly brush the flowers with a camel's-hair brush. The Cucumbers should receive about 5° higher throughout, a more moist atmosphere also being maintained. You should carefully read the remarks on Cucumber culture by Mr. Stephen Castle on page 369.

Names of Fruit (A. Ridgway).—The Apple is Pine Golden Pippin. (*Henry Riches*).—1, Not known; 2, Dumelow's Seedling; 3, King of the Pippins; 4, Royal Russet; 5, Blenheim Pippin. (*D. C.*).—1, Beurré de Capiaumont; 2, Comte de Lamy; 3, Figue d'Alençon; 4 and 5, not known; 6, Maréchal de Cour; 7, Groom's Princess Royal. (*C. W. H.*).—1, Wormsley Pippin; 2, Rhode Island Greening; 3, Herefordshire Beefing; 4, Reinette de Canada; 5, Royal Reinette; 6, Christie's Pippin. (*R. O.*).—1, Not known; 2, Newtown Pippin; 3, Adam's Pearmain; 4, Braddick's Nonpareil; 5, Sturmer Pippin; 6, Shepherd's Fame. (*W. H. Divers*).—1 and 2 we do not recognise; they may be local varieties or seedlings, and are very sour. No. 3 resembles Calville Blanche. (*F. O. M.*).—No. 1 is Cockle Pippin, and No. 2 Fearn's Pippin.

Names of Plants (J. Smith).—1, *Aster novæ-angliæ* var. *roseus*; 2, *A. Curtisii*; 3, *A. novæ-angliæ* var. *pulchellus*; 4, *A. dumosus*; 5, *A. ericoides*; 6, *A. Tradescantii*. (*W. C. B.*).—1, *Adiantum Capillus-Veneris*; 2, *Adiantum assimile*; 3, *Panicum plicatum variegatum*; 4, *Gymnogramma peruviana argyrophylla*; 5, *Selaginella stolonifera*; 6, The specimen was insufficient for identification. (*J. R. Wraybury*).—1, Apparently imperfect specimens of *Goniophlebium subauriculatum*; 3, *Pteris longifolia*; 2 and 4 were too much crushed to be recognisable. (*E. C. O.*).—*Medicago echinus*. (*H. H. T.*).—*Fraucoa ramosa*. (*H. A.*).—*Malva moschata*.



POULTRY, PIGEON, AND BEE CHRONICLE.

ROTATION FOR CROPPING LIGHT SOILS.

(Continued from page 382.)

IN concluding the subject of rotations for light soils we propose more particularly to refer to two descriptions of land which we have not yet touched upon—viz., the light thin weak land, often found at a very high altitude, and overlying the great oolite or Bath freestone rock, and known as “stone brash,” and which is found in particular districts, such as the elevated plains like those in Gloucestershire called the Cotswolds, and in various other counties, especially in the western and north-western portions of the kingdom. Although these soils are very thin, yet they are dry in the winter, affording excellent lying for sheep—in fact, upon these soils are to be seen some of the finest long-woolled

sheep, in proof of which are the Cotswolds, taking their name from the district of which they are natives. The other soils, which we feel bound to recognise as being of the greatest importance of all the light soils, are the gravels, in proof of which we find them when favourably situated as to climate, &c., making a higher rent than any other light land. They are met with in nearly all the counties to some extent, but more particularly we find them in the south and south-eastern districts, where they are called the home of the fat sheep, lambs, and bullocks, which supply the metropolitan and other large town markets with some of the choicest and best qualities of meat raised in the kingdom. Now, these gravels are found occurring here and there in the vales on the side of river courses, and at the mouths of rivers, and not unfrequently skirting the seaside. We have noticed that these gravels are generally situated next to the water meadows in most of the districts where the mixed soils occur, and this circumstance goes far to characterise the style of management and rotations which prevail in the tillage of such land.

We will, without further enlarging upon the subject, proceed to give the rotations adopted, and which we recommend, taking first the “stone brash” soils; and for the purpose of illustration we will again take a farm of 450 acres, situated on the open plains without downs or meadows, because in the absence of these we must apportion a certain area for Saintfoin, Lucerne, &c., for it must be remembered that these soils do not always answer in permanent pasture or down so well as chalk soils, therefore in arranging our rotation 50 acres must be in Saintfoin, &c. Our rotation will be as we recommend it, five-course—viz., 1st, Wheat; 2nd, Barley or Oats; 3rd, green crops and roots; 4th, Barley or Oats; 5th, Clover and Grass. If, however, an extra number of sheep are required to be kept a large flock will require a more extensive provision of green food, in which case the rotation should be—1st, Wheat; 2nd, green crops and roots; 3rd, Lent corn; 4th, Clover and Grasses; 5th, old lea. We will take the first-named rotation as adapted for a flock of a moderate size and a large lain of cereals. First course Wheat, 80 acres, dunged and sown at one ploughing and pressing. Second course Lent corn, 80 acres, autumn-fallowed or surface-cleaned, in order that the corn may be sown early in the spring, and this is of leading importance on such dry soil. The Lent corn, however, should be manured by artificials, say 1½ cwt. of Peruvian guano and 2 cwt. bone superphosphate per acre, applied by the drill with the seed. In case, however, of any portion of this lain being extra foul it should be pared and burned in the autumn; it would then require no artificial manure, as the ashes would be quite equal to produce an abundant crop of either Oats or Barley, but more especially drege, because in case the crop should be laid or lodged it would not injure the quality of the grain so much as it would a crop of Barley. Third course green crops and roots, 80 acres, of which 40 acres should be seeded with Rye, Trifolium, and Vetches in certain proportions upon the cleanest land, and the foulest to be autumn-fallowed for Swedes, Turnips, Thousand-headed Cabbage, or Rape. The same sorts of roots will also be grown after the green crops, as Mangolds, Carrots, &c., do not usually succeed as a rule upon the high cold hills. Fourth course 80 acres, 50 acres of which may be seeded for Barley, the remaining 30 acres to be seeded with drege after the latest feeding of roots, which should be cleared off by the 1st of May at the latest. Fifth course 80 acres, to be seeded in the Lent corn; 40 acres with Red Clover, Alsike, and Giant Saintfoin; and 40 acres with Dutch Clover, Suckling, and Pacey's Perennial Rye Grass, these seedings to be reversed at the next rotation. This course of cropping is better adapted for a dry or wether flock than for breeding ewes, because greater numbers can be kept for the feeding off roots in good time for Lent corn, and a lesser number for grass feeding in the summer months. The second rotation as above named, and suited

for a large flock of breeding ewes, is also a five-course, and will be cropped as follows:—First course, 80 acres of Wheat after Clover, and part Turnips fed off; second course, 80 acres, green crops in part, and followed by roots; third course, Lent corn, 80 acres, part Barley and part drege; fourth course, 80 acres, seeded half with Clovers and half with grasses, as before stated; fifth course, of 80 acres old lea, will be 40 acres of Clovers, to be cut for hay or fed by sheep; and 40 acres of grasses, to be fed off until midsummer, then ploughed-up and seeded for Turnips, to be fed off by sheep eating cake, &c.

We now come to the most interesting and important courses of cropping adapted for the gravel soils, much of which, especially as they are for the most part situated in the south and south-eastern districts, in a climate favourable not only for the growth of full crops of cereals, but famous for the abundant root crops, which as a rule are grown upon them. The exceptions are those gravels having a hard conglomerate of gravel, like concrete, just under the plough, which, however, when broken through by the steam power subsoiler generally becomes a useful porous soil. The four-course or old Norfolk rotation generally prevails, and all things considered we cannot advise any other rotation, except a deviation, which will be explained, but still leaving it a four-course. In order to describe it we will again assume the farm to be 450 acres in extent; the pasture land being 50 acres, leaves for cultivation 400 acres. The course is—first, Wheat of 100 acres, sown out of Clover lea, and yard dunged, one half of which being laid out upon the young seeds in the previous winter or early spring months, the other half being laid out immediately before ploughing and pressing for Wheat. The object of this arrangement is to have the dung when laid on in a fresh and valuable condition. After Wheat comes the second course of 100 acres for green crops and roots, and when these soils are free from couch, which they are usually, 20 acres would be after harvest in Italian Rye Grass, having been sowed in the Wheat at spring time. This furnishes abundance of food for ewes and young lambs up to Christmas; it is then ploughed deep and pressed. After harvest 10 acres of Rye is sown, 20 acres of Trifolium (two sorts), and 20 acres of early and late Winter Vetches. The root crops will follow the 50 acres deeply ploughed after Italian Grass, which will be cropped with 20 acres of Mangold and Carrots without ploughing the land, but only using the scarifier to keep it clean and moist, and no dung to be applied, only artificial manures with the drill. After feeding off the Rye, Trifolium, and Vetches, Swedes and Turnips will be sown as fast as the land is cleared, and sowing Swede seed up to the 20th of June. Common Turnips after that date. This also will be dressed with drill manure only. Third course 100 of Wheat, Barley, and Oats or drege in the following proportions in a favourable season—30 acres of the land cleared early to be Wheat, 30 acres for Barley, and 40 acres for White Oats or drege. This should be sown not later than the 1st of May, as the root land, when a full winter flock of early ewes and lambs, both of horned Dorsets or early Downs, will be nearly or quite all sent to market, both lambs and ewes likewise, because we have seen it done many years in succession.

This rotation is neither more nor less than growing large crops of food in summer and consuming them chiefly in the winter and spring, because the bullocks in the boxes are provided for by one-third of the root-crop pulled away, the remainder fed off by the earliest and best sheep that can be bought, and eating both cake and Beans during the whole time; the young cattle in winter and spring receiving Rye, Trifolium, Vetches, and Clover, maintaining them in an improving and probationary state until they go into the boxes for winter feeding. The fourth course of 100 acres will be Clover, 50 acres of broad and Alsike, and 50 acres of Dutch Trefoil and Suckling mixed, to be reversed in the next rotation. The Clovers will be cut for hay in part, and cut green for feeding cattle under cover on the other part. The Dutch, &c., will be cut for lamb hay, which is the only hay really adapted for them, being very soft and fine. Under this system very few sheep will be kept in summer, and these being some tegs or ewes to take ram early for the winter feeding. We have to name another variation in the four-course, for when the land is in high condition, a large quantity of cake, &c., having been consumed, the course may be somewhat altered, particularly after the land has been marled, or clayed and chalked, to give it a little more staple, 10 acres of the Red Clover lain may be cropped with early Potatoes instead, and the same quantity with winter, not spring, Beans; and also 10 acres of early Peas to be picked early for market if situated near towns, otherwise for feeding lambs, &c. The Wheat crops on this soil and rotation may with advantage be the best white sorts, such as Essex, Rough chaff, Champion, and Chidham.

WORK ON THE HOME FARM.

Horse Labour is now chiefly employed in preparing for and drilling

of Wheat, but on the warm dry soils the seed time is often deferred to the end of November and early part of December; for it is frequently found that during the dry weather, like that which has prevailed for some time past, the horse labour can be employed with advantage in continuing the work on the autumn fallows. The home farmer may be assured that it is best to make the most of this work during suitable weather in the autumn, for there is always more or less uncertainty in obtaining favourable weather for cleaning the land in the spring months; besides which, every period brings its labour required into prominent notice. It is therefore well to make available the first opportunity by fallowing and clearing the stubbles in the autumn. This idea cannot always be carried out upon the cold hill farms, nor yet on flat, strong, and low-lying land, for October is the best seed time for Wheat upon both these soils. Carting and storing the Mangolds and other root crops will afford partial employment for some horses. It should, however, be a matter of foresight by the home farmer as to whether the roots will all be required at the farmstead, for unless that is the case hand labour only need be employed in heaping and pitting the roots in the field where they grew, and where they will be fed by sheep on the land. In the event of any portion being required for cattle in the sheds and boxes the roots may be carted to the premises at a later period when the Wheat has all been sown and the horses more at leisure. If any hindrance to the ordinary horse labour of the farm should arise some of them may be employed in collecting earth from the roadsides, banks, and borders of the fields, &c., and made up into an elongated heap with cone-shaped top, and covered with bavons or hedge trimmings, or anything which will keep the earth dry. It will then be ready at any time for breaking down and screening in readiness for being used at the bottom of the cattle boxes, pig pens, &c., for absorbing the liquid manure and keeping the animals healthy at the same time. For many years we in our practice used over a hundred cartloads per annum made into manure by the cattle, and the home farmer must bear in mind that one cartload of saturated earth as above stated is equal in manuring value to two loads of straw-made manure.

Hand Labour.—Trenching in the meadows, hedging and ditching, banking, &c., will be going on in the enclosed districts, also the cutting and converting of the underwood in the woodlands and rows may now be done to advantage. The land, too, as fast as the Wheat is sown upon the heavy lands, should be carefully water-furrowed, and where there is but little fall care should be taken to excavate the bottom of the water furrows, not only deep enough to clear out the land furrows, but to deepen them sufficiently for the water to fall into the ditches of its own gravity. This, however, cannot always be so correctly done; it is therefore the best plan to look at the work again after heavy rains, for accumulated water may then be let off. Shepherds in every district have now important work to perform. The fatting sheep will still be folded upon Turnips or Cabbages, receiving half a pound of oilcake and a quarter of a pound cracked Beans each per day; where, however, the Beans are omitted the best Clover hay should be supplied in moderation, and increased as the season advances. The Hampshire down ewes in most instances will by this have the rams removed from the flock. The long-woolled flocks will still require the rams to remain with them for another month or more from this time, because the lambs will not be required to fall until the spring grass is nearly or quite ready for the ewes. The horned Dorset and Somerset ewes are now lambing fast—at least, all the best and earliest flocks. It is a most interesting sight to all who take an interest in this breed of sheep. For a long number of years it was our pride and our pleasure to possess them; therefore we are induced to say that we consider a well-bred flock of these animals, with numerous twin lambs at their side, is one of the most charming and entertaining objects to be met with in the breeding and rearing of sheep stock. We can therefore recommend them to the notice of the home farmer, where the soil and climate is dry and favourable, both for profit and their ornamental appearance in the parklands and pastures belonging to noblemen and gentlemen, and we have generally found that they have been pleased to see and possess them as part of the sheep stock of the estate. As fast as the lambs arrive we place the ewes and lambs upon Italian Rye Grass growing in the Wheat stubbles, which we sow on the Wheat in the spring, because we have found that the ewes will give more milk on this grass than when feeding on any other food; in fact, we have on some occasions sold fat lambs at Christmas of the best quality when they have had no other food, either ewes or lambs. Cattle of all ages which are kept as either store or dairy stock should now receive some Cabbages on the pastures daily to supplement the grass, which is now getting short, unless where specially reserved for late feeding. All the cart horses and young animals of different ages, especially this year's weaned colts, should have a portion of roots with their corn and other dry fodder, Carrots being the best; but Swedes will serve a good purpose until the spring, at about the March month, when Mangolds will be best for feeding until the Rye, &c., is ready. No horses should receive more than 10 or 12 lbs. of roots per day, given in two portions, which will keep them healthy.

THE METROPOLITAN DAIRY SHOW.

THE fifth annual Show of the British Dairy Farmers' Association was opened on Tuesday last at the Agricultural Hall, Islington, and closes to-morrow (Friday). It is the largest and perhaps the best

Show yet held by the Association, the large hall being well filled. The Exhibition comprises dairy cattle and all descriptions of dairy produce, with the various implements and appliances connected with its manufacture. Goats, poultry, and Pigeons are also included, while space is also devoted to bees and honey. Prize drawings and plans for a dairy farm homestead are on view, and there is the usual miscellaneous collection of articles more or less connected with the farm or dairy.

The live stock in the dairy classes number nearly three hundred, and comprise a valuable collection of animals. Most of the classes were well filled, but the Channel Island classes especially so, and it was here where the most keen and exciting competition took place. Her Majesty the Queen sent several animals to the Show, and obtained prizes in some of the classes.

In pedigree stock for Shorthorn cows in milk or in calf there was a fair competition, the prize being awarded to "Violet," belonging to Mr. W. H. Wodehouse, Woolmers Park, Hertfordshire, an animal showing great length of frame with her milking qualities well developed, while her fine breeding is unmistakable. Her Majesty the Queen took second prize with a very fine animal, but not showing the dairy qualities of the winner. For pedigree bulls the Marquis of Exeter was awarded the prize for his "Telemachus IX.," which is a magnificent animal, and well worthy of holding the premier position if its weight, which is enormous, is overlooked.

For Shorthorns not eligible for the herd book there is a good entry, and many useful animals are exhibited. The West London Dairy Society supplied the winners for those shown in pairs with a couple of red roan cows about five years old, remarkable for their milking qualities, and no doubt obtain their position from that cause, as we should consider the second and third of superior quality. Amongst the single cows the winner was exhibited by Mr. Thomas Birdsey of Leighton, Beds; she was five years old, and shows both size and symmetry. She is a capital specimen of a dairy cow, and is very rightly placed at the head of her class, which is good throughout, having many first-class milking animals amongst them. In the Ayrshire classes there is not a large competition, Mr. George Ferme of Streatham Hill being the principal exhibitor, and takes nearly all the prizes.

The Channel Island classes we consider to be the feature of the Show. A very large entry in the Jersey classes excited the keenest competition, which gave the Judges some considerable difficulty in deciding. The well-known breeder, Mr. George Simpson of Reigate, carried off the two first prizes for cows with two especially fine animals, while Mr. Cardus of Southampton took the third prize with a cow not at all deficient in good points. Most of the animals showed both colour and breeding, and the class was a very good one. In the heifer class, in which there is the large number of forty-eight entered, Mr. Cardus was successful with a heifer not quite twenty months old, having not long calved. The only fault we could find with the winner was its being perhaps rather light behind the shoulders, but this may be remedied when it reaches the age of the other competitors, though we consider it young to have bred a calf, and question whether it is sound policy. The second prize belonging to Mr. Simpson, and the third to Mr. Le Brocq of Jersey, are both fine specimens of Jersey stock, while the whole class is especially good.

Amongst the bulls Mr. G. Simpson was again successful with a capital animal of good colour, while several animals ran him close for the prize. The Guernseys were good, Mr. J. James' cow and Mr. E. P. Fowler's heifer being really first-class animals and good illustrations of the breed. The Kerry cattle are not numerous represented, but some good animals are shown, and they are no doubt good dairy stock.

Of foreign cattle some fine animals from Holland attracted our notice as combining great size with apparently good milking qualities.

The prizes for Goats attracted an entry of 114 animals, and the various breeds are well represented.

The poultry and Pigeon Show is held in the gallery, and is very large, there being nearly two thousand entries in the numerous classes, which are exceptionally good.

The numerous classes for cheese and butter are also well filled, and all kinds of English and foreign dairy produce are represented, there being several rows of cheese, while in the centre a large pyramid of foreign cheeses attracts considerable notice.

FAMOUS POULTRY YARDS.

GARTHMYL HALL (MRS. TROUGHTON'S).

It is a pleasure to us to resume a work which circumstances have for some time interrupted—viz., the description for our poultry-fancying readers of some of the best and most successful poultry yards. Through several seasons the name of Mrs. Troughton has often appeared high in the prize lists of our great shows, specially in the classes of Dark Dorkings and White Leghorns; rumour reached us that the homes of these winners were among the prettiest and best arranged of poultry yards, and we gladly accepted a hospitable invitation to Garthmyl Hall to inspect them. We have described establishments on various scales, from the modest abodes of one breed up to those of princely magnificence where almost every variety may be found,

Each has had its own characteristic features, and so have the Garthmyl yards. They are large yet manageable, and though there is much variety in the breeds kept, they are not so numerous that interest cannot be taken in individual birds. Their origin has been the same as that of the establishments of many a lady fancier—the country was dull, and Mrs. Troughton needed occupation. This she found, and useful occupation too, in the superintendence of her poultry. Their houses and yards, well adapted to the purpose, are for the most part of her own contrivance and the work of her gardeners; the poultryman is a native of the place, who has learnt his business in them.

The chief interest of such undertakings lies much in their gradual arrangement and expansion, and the pleasure of looking round places which are the result of home ingenuity is far greater than that of walking through the most costly erections of professed carpenters. We have seldom seen a place more suited to poultry than Garthmyl; it is situated in a richly timbered valley of Montgomeryshire. We entered by a drive curving through shrubberies and woods; Deodars are prominent on each side; then on the right appears a charming pool, trees feather to its edge, and it is broken with Reeds and Sedge—a veritable Paradise for waterfowl. Further on, as we approach the house, paddocks open on the left, and we catch the first glimpse of poultry. Here and there under trees are houses, each surrounded by its yard of wattle hurdles. The inmates were chiefly cockerels. We first saw Dark Dorkings, strong and promising birds, revelling in the shade of the spreading Oaks. Likenesses run through strains of poultry as well as through human families, and it interested us to recognise in some particular points of resemblance to their ancestors in our own yards. Among them were three or four Courtes-pattes cockerels, pretty, sprightly, saucy little fellows, with the characteristics of their breed strongly developed. It has been asserted that this is but a mongrel race, which will not breed true to its points; such cannot be the case when the veritable stock is procured. Mrs. Troughton brought her stock birds from a famed French yard, and the produce seem exactly to resemble their parents. Terrible little Turks they appeared, continually chasing the big Dorking cockerels about till they sank down exhausted. Doubtless their high spirits are somewhat due to their luxurious fare, for the next morning we saw such a meal of bread, and milk, and eggs, going to them from the breakfast table as few fowls ever taste.

To the south and front of the house were these scattered poultry houses; westward through the conservatory we came on to a fine lawn, with huge trees here and there on it, and delicious views of a long valley broken with wooded knolls. Beyond in a paddock are many yards, not the cramped places often so designated, but each a grassy enclosure, with more spreading trees, large enough for many birds to live in in health; these, too, open again into the open paddock, and by turn all the birds can have full liberty. First were a quartette of yards, one house in four divisions serving for them. This is an economical plan of construction. In one were a group of Golden Poland cockerels, then White Leghorn cockerels in numbers (among them one superb bird), then Silver-laced Bantams, then Golden Poland pullets. From these yards we emerged into an immense enclosure, more like a field than a yard, all backed to the north by the shelter of a dense wood. Here were many birds, chiefly Dark Dorking pullets; and then came a troop of Ducks from a large pond abutting on this great run—such a troop of Ducks as we have seldom seen; not obese exhibition creatures, the very sight of which we abhor, and whose appropriate abodes are usually pigstyes, but the most active, hard-feathered, glossy-plumaged flock. These were white Call Ducks and sheeny black Ducks, and most numerous of all wild Ducks, the Mallards, in the fullest glow of their new plumage. We were greatly delighted with the busy quacking throng, again and again turned back to watch them, and the next morning counted no less than eighty-five at once on the water. Next on the edge of the deep wood, in a kind of bower, we visited the old Dorking hens, in warm retirement for the moult; and then there were many neat arrangements to be seen—a home-made artificial "mother," in which all Mrs. Troughton's birds are reared; most of them are hatched, too, in an incubator. One long house, too, specially took our fancy. All appliances for an exhibitor were at hand—pens for the private judging of several birds, meal tubs and corn bins and a vegetable slicer, and then on each side of a central passage larger pens for birds fresh from show, or in inclement weather, or during the moulting season. Thence we came to a particularly pretty run, a large long enclosure, protected from east winds by a high garden wall; two or three thatched sheds open into it, and some moulting birds were basking on the sunny side of fine thick Conifers. Among them, his career over, a grand old Dorking cock; in his chickenhood a

special favourite of our own, and the sire of most of Mrs. Troughton's strain.

Space fails us to recount all the contrivances we saw, but we must not forget a long row of coop-like connected sitting places, in each of which a hen can sit undisturbed, and as they are partially glazed can remain with her brood through their earlier days. From the poultry yards we passed on to a pretty sunk flower garden, and thence to kitchen gardens and vineries, where all was preparation for a neighbouring fruit and flower show; thence, too, we believe as many prizes or more came to Garthmyl as come from the poultry shows. Beyond the gardens another treat awaited us—a paddock with Alderney cows and some immensely powerful Norwegian cobs, and then the stables. Mrs. Troughton is quite as good a judge of a horse as of a Dorking, and has much longer been a fancier in this line. The cobs of Montgomeryshire have always been famed, and we saw as fine a pair in the stable of Garthmyl Hall as we have seen for many a day. But we are wandering beyond the "famous poultry yard." We revelled in the sight of it and its lovely surroundings, and hope ere long to see some of its tenants again at the Crystal Palace and elsewhere with prize cards over them. We cannot end without advising our lady readers with spare time in the country to devote themselves with like energy and ingenuity to make their poultry yards useful and famous.—C.

VARIETIES.

HULL AND EAST RIDING CATTLE AND POULTRY SHOW.—Amongst the prizes offered for competition at this Show are the Corporation Plate, value £200, for the best beast in the open classes; a piece of plate, value £100, for the best Shorthorn; a similar prize for the best Scotch or crossbred beast; and a Challenge Plate, value £100, for the best beast in the Show; entries close on November 2nd. We are requested to direct attention to the following error in the schedule:—Classes 78 and 79 are stated to be for Spangled Hamburgs. The schedule should read, "Class 78 Golden-pencilled hen or pullet, any age; class 79 Silver-pencilled, any age."

— AGRICULTURAL STATISTICS.—From the agricultural returns issued by the Board of Trade we learn that the total quantity of land returned in 1880 as under all kinds of crops, bare fallow, and grass amounted, for Great Britain, to 32,102,000 acres. For Ireland the returns show a total of 15,358,000 acres, and for the Isle of Man and Channel Islands the totals are respectively 97,000 acres and 30,000 acres. Thus for the whole of the United Kingdom the cultivated area was in 1880, 47,587,000 acres, exclusive of heath and mountain pasture land, and of woods and plantations. In Great Britain the area returned as under cultivation has increased by 126,000 acres since 1879, and the total increase in the ten years since 1870 is no less than 1,694,000 acres, or a greater area than the whole of Devonshire. Of this increase about two-thirds, or 1,187,000 acres, were in England, 220,000 acres in Wales, and 287,000 acres in Scotland. A large share of this increased acreage must be credited to the more correct returns of late years, when errors from the use of local acres, such as "Scotch" or "Lancashire" acres, and also the omission of out-of-the-way farms, have been discovered.

— ACREAGE OF CEREALS.—The area under Wheat in 1880 was 2,909,000 acres, or 19,000 acres more than in the previous year. The Wheat area of 1879 was, however, the lowest on record since the returns were first obtained in 1867, and the present year's crop was grown on nearly 591,000 acres less than in 1870. In some counties it has been stated by the collecting officers that a favourable autumn led to an increased breadth of Wheat being sown, but the large number of unlet farms, and of farms where agricultural depression prevailed, appears to have caused much Wheat land to be left in fallow, as will be noticed presently. In Barley there is a considerable decrease since 1879, when 2,667,000 acres were sown, as compared with only 2,467,000 acres in the present year. The inferior quality and the difficulty of securing the crop last year are stated by the officers in some places as having caused this decrease, but it may be noted that the present year's acreage under Barley is fully equal to the average of the last ten years. Oats were sown on 2,797,000 acres, or an increase of 5 per cent. over the area in 1879, and these figures have only once been reached since 1867; but the other stock-feeding

corn crops show a considerable falling-off, Beans being grown on 427,000 acres as compared with 530,000 acres in 1870, and Peas on 234,000 acres, against 317,000 in 1870. The imports of Maize, which compete largely with these crops, have somewhat declined during the past year, but are still more than double those of ten years ago. Taking, then, all the figures as to the corn crops in Great Britain, we find their area was 8,876,000 acres, or a decrease of rather more than 1 per cent. from the previous year, and of 7 per cent. from the year 1870.

— A SUCCESSFUL VERMONT APIARY.—A correspondent writes from Danby, Vt., to the "American Bee Journal":—"I have extracted 4000 lbs. of white honey, of good quality, from about seventy colonies. I do not know whether this is quarter, half, or a whole crop. I have spent about twenty days in getting it, and am well satisfied with the result. I sell extracted honey at 15 cents per lb., and comb honey at 20 cents. I have been in the business three summers, having started with bees in boxes; they are the Langstroth hives now, and are mostly in good working order. Have had but one swarm leave me; that went fourteen miles by observation, and how much further no man can tell. I live between two high mountains, the sun always shining into our valley at noon, and the flowers always blossoming either in the valley or on the mountain sides. Basswood, Melilot, White Clover, and Buckwheat are the main supply. I winter the bees in a building with walls 26 inches thick, and floor overhead covered with sawdust. It does not freeze in the coldest weather, or get warm during a thaw. The temperature is regulated by ventilators. The bees consume but little honey during the winter. I am well pleased with the business."

— POTATOES FOR FATTENING CATTLE.—"As the crop of Potatoes is large this year, and prices low, it is probable," says the *Irish Farmers' Gazette*, "that growers in districts remote from markets may find some difficulty in disposing of their surplus supply. We do not require to remind them of the value of Potatoes as food for pigs; but it would appear that it is not so generally known that cattle may be profitably fattened for the butcher on Potatoes. In the early part of the present century Turnips were not much known in Ireland, and a considerable proportion of the cattle fattened during winter at that time were fed upon Potatoes. Potatoes are given to cattle either raw or cooked, by steaming or by boiling. When given whole cattle will sometimes choke upon them, and Potatoes used in the natural state are also apt to cause a troublesome amount of swelling from flatulency. Both objections may be obviated by steaming the Potatoes or by pulping them and mixing them with chaffed straw or chaffed hay. If some cake, Indian meal, or crushed Barley is mixed with the mass a very fattening description of food will be obtained at a moderate cost. Potatoes lose very little of their weight by steaming, and when given to cows in milk they should always be cooked, and given while still moderately warm. In feeding cattle upon Potatoes it is advisable to begin with a small quantity daily at first, say 10 or 12 lbs., gradually increasing the quantity to 28 lbs. per day or more, according to the size of the animals, &c. With beef at 70s. per cwt. there can be no room to doubt the profitability of using the surplus produce of this year's crop of Potatoes in fattening cattle for the spring markets."

— MORTALITY IN SHEEP.—At a recent meeting of the Devonshire Chamber of Agriculture Mr. James P. Heath read a valuable paper on this subject, from which we cite the following from the *Exeter Flying Post*:—"During the past fifteen years he had especially studied the diseases of sheep, and had practically treated over three hundred thousand with a loss of less than 3 per cent. As soon as the flock is found to be affected the owner should immediately provide the whole of the animals with shelter, and supply them with the best food—Turnips, hay, and corn—and twice a day administer gruel seasoned with salt, and with a couple of ounces of spirit mixed with it. Methylated spirit was the cheapest for stock, and at double the strength of brandy it cost only 5s. a gallon. Common fluke-rot in the earlier stages was curable; but when there was an alteration of the structure of the liver by disintegration it was useless to expect a cure. The most that could be done was to get flesh enough on them to kill, as they would not pay to keep for

store purposes. They should be given corn daily, with common table salt mixed with it, not once or twice, but continually, and powdered sulphate of iron once a week, mixed in the same manner, to supply the blood with the red globules which almost entirely disappear where death proceeds from the presence of flukes. To prevent the development of flukes when the sheep were put on low feeding land in the summer, without any other food, sow manure-salt broadcast over the pasture before allowing the sheep to graze. Two cwt. or three cwt. per acre was sufficient. If the sheep were kept for the winter on doubtful pastures, sow the salt spring and autumn as well. It was well known to be impossible to give sheep the fluke-rot in salt marshes over which the tide flows. The insect, or entozoon, might be almost described as a fresh-water fish, so nearly does it resemble a fish's shape. In conclusion, Mr. Heath said he felt convinced that if these measures were systematically carried out, there was no reason why there should be greater mortality among sheep than any other live stock, and that if they were generally adopted the youngest farmer present would never live to see a repetition of the disastrous season through which they had just passed."

QUEEN ENCASEMENT—MAKING THE MOST OF WEAK STOCKS.

WHETHER encasement of queens is of one or of two kinds is a question to which perhaps no bee-keeper is able to give a thoroughly satisfactory answer.

It is probably true that at times queens are "balled" by their own bees for the purpose of making impossible any attack by aliens which have been added or have added themselves to their number; but for myself I have of this never had any satisfactory proof. In uniting blacks to Ligurians, although I have many times had to release the queen, I have never found that the yellow-banded bees formed the enclosing mass, which should at least have happened occasionally according to the theory of defensive encasement. Yet we must remember that this theory has been advanced by some of the most observant amongst apiarians, while we all are occasionally met by such unexpected behaviour (apparently vagaries) in the workers towards the queens, that we feel as yet in the dark without a shred of explanation to offer. Our difficulties notwithstanding, it is not too bold to say that dissatisfaction is almost if not quite always the reason of the trouble. The past spring has apparently been remarkable for the unusual number of encasements occurring in hives which have been in no way disturbed. Of the embarrassments of this order which I have this year encountered, two at least seem worth recording as showing that bees will often bear with a queen that they know to be imperfect while they have no chance of getting a better, and anything which helps to explain the reasons of queen-rejection is of value as possibly leading up to some improvement in queen-introduction.

The Cyprian queen which Mr. Jackson presented to the Association I was asked to "have and to hold" for the Association and for apiculture. This queen had had the wings on the left side removed. She was introduced to a small stock without difficulty, and was quickly built up into strength. She laid magnificently, and no queen could have discharged her duties in a more queenly fashion. Royal cells were started, and frame after frame was removed in exchange for foundation to utilise the cells and keep my wingless Cyprian contented, lest in an attempt at swarming in my absence she should be lost. Yet ovipositing went on so rapidly, and queen cells were so constantly produced, that I moved her stock and put the mother into another hive on the old spot with a couple of frames of hatching brood, thinking that the bees would conclude that swarming was over, and so settle down to storing. But it was not so; queen cells continued as before to poke out their bell-like openings, whilst I began to be made anxious by noticing that the much-valued mother exhibited more and more decidedly the rickety gait which no one likes to see in a pet of the apiary. Eager to secure daughters, because I feared the loss of the mother, I continued to hatch these cells in nuclei, but I have had to pay the penalty. The queen at a later examination was found encased. It was too late, and probably would have been useless had it been earlier to try her in another hive. She is gone, and an unmated successor remains. I happily have a good number of her regal children for drone-raising in the spring (for the latter, be it remembered, will be pure even if misalliances have occurred), while another queen from a distinct portion of the island of Cyprus, and imported direct by Mr. Jackson, is going in fine order into winter quarters, and will, it is hoped, supply many brides to the drones aforesaid. My limited knowledge of Cyprians led me to

believe that the continued and exceptional production of queen cells was characteristic of the species or variety, whichever it may be determined to be; but I now believe that some defect in the mother, known to the bees alone, determined them to remove her, and that her supercession and not swarming was the occasion of the continuous production of royal cells. The encasement was only the preliminary to her ejection, and a safeguard against the destruction of the maturing nymphs. Had I been able to prevent all of these hatching within the hive no doubt the queen would still have been tolerated, in the spirit of the woman who complained of a bad husband, but added apologetically "he is much better than none at all."

It is my plan now to keep the population of my nuclei at work in nursing and raising bees by constantly giving them, as they are able to bear them, frames of eggs or larvæ. In this way the nuclei instead of becoming weaker grow into strength, and are able by the time the queen comes into laying to brood all the eggs she can produce. These frames of eggs cost comparatively nothing, for in poor stocks the queen if worth keeping can always furnish more cells than the bees can cover, and by placing in the centre of such stocks an empty comb it will be furnished in a couple of days at most with a good patch of eggs. If this be allowed to remain ovipositing will be nearly suspended, the queen will become for a time comparatively idle; but by removing it and giving it to queenless stocks, the bees of the latter will be provided with employment, and in the end much strengthened, while a frame of empty comb returned to the weak stock will evoke the energies of the queen. By repeating this plan queenless bees can be kept going and at work, and queens in weak stocks can be made almost as prolific as though they were in strong stocks. This explanation was necessary to make clear the second case to which I wish to refer. A nucleus possessed a queen which had not apparently mated, although she was between a fortnight and three weeks old. In order that it might not grow weak I gave it a frame of eggs and larvæ. An hour or so after that husky buzzy roar which means an encased queen attracted my attention, and looking within I found the well-known compact mass, while every bee was fanning and running hither and thither so as to make confusion worse confounded. I broke up the crowd, found her majesty, smoked them till they must have felt like the boy in "The First Whiff," and placed the queen on the alighting board, but she was seized immediately. Releasing her again I carried her about 20 yards and threw her into the air. In a few minutes she again sought an entrance, proving that she had previously flown for impregnation, but in a moment she was in the grasp of two or three and thrown to the ground. Thinking the bees knew what was best I dropped her into methylated spirit, and inserted a Cyprian cell, which has furnished a good mother now wintering at the head of a stock of unusual strength. That this case is in large part parallel with the previous one is, I think, apparent.

Bees having normally but one queen, a means of getting rid of excess seems to be a necessity of their economy, and that means is for the mature insect encasement. Ants have many queens, and they accept at once those of any nest of their own species. In each case one fact in part at least explains the other.

The only practical point that appears to come out of cases such as those I have related is this, that a queen is accepted very much more readily by a stock if the old queen has been in any way injured. Two accidental cases have occurred amongst my bees of a very startling kind proving this most conclusively, but upon these space forbids my saying anything now. May not, however, the difficulty experienced sometimes in introducing a new mother arise from some defect or injury possibly given during the time of caging? And we must admit that since bees have the power of recognising every member of their own big household, and distinguishing every stranger, it is quite likely that little matters which we cannot detect are to them as conspicuous and distinct as facial expression is to us.—F. CHESHIRE.

SUCCESSFUL BEE-KEEPING.

It is pleasant to write, read, and think of successful men and successful work. The success of the bee-keepers at Carlisle in Lanarkshire has during the last fifteen years often commanded prominent notice. One or more of these bee-keepers annually send to me statements of their results. The report this year has come from Mr. James Rennie, who, I believe, is the largest bee-keeper in the locality. He says, "This year (1880) has been a successful one, the best for profit that I have ever had in this part of the country. The bees did not gain much weight of honey from the fruit blossoms and Clover—just enough to keep them breeding. They made lots of workers. On being removed to the heather they had three days of fine weather each week for a fort-

night, and ten days at the winding-up or finish. The Heather blossoms failed before the weather. There is not a bee-keeper in Carlisle worthy of the name who had not hives 100 lbs. in weight and over, though they were comparatively light when taken to the moors. Mr. Lindsay took eight hives to the moors. He weighed them when they went and after their return. The following figures indicate how much weight was gained on the heather:—

No. 1 stock hive rose from 31 lbs. to 82 lbs.	
2 " " 60 " to 143 "	
3 " " 45 " to 105 "	
4 " " 23 " to 140 "	
5 first swarm " 60 " to 120 "	
6 " " 65 " to 135 "	
7 " " 55 " to 140 "	
8 a turn-out " 30 " to 89 "	

It will be seen that the eight hives gained 555 lbs.

"Mr. Lindsay does not take second swarms from his hives. Mr. John Jack had a stock hive that yielded two swarms, the first of which cast off two virgin swarms. The first virgin swarm broke down in going to the moors. On their return their weights were as follows:—Stock hive, 97 lbs.; first swarm, 47 lbs.; second swarm, 112 lbs.; first virgin, 37 lbs.; second virgin, 26 lbs.; total, 319 lbs.

"The produce of one of my own hives is as follows:—Stock hive, 102 lbs.; first swarm, 148 lbs.; second swarm, 76 lbs.; third swarm, 92 lbs.; virgin swarm from second, 56 lbs.; total, 474 lbs. Please to write soon and let me know if you ever knew a return equal to that of my stock hive and its swarms."

Though Mr. Rennie is a clever and successful bee-keeper, and though he realised about £40 from eight stocks in 1878, I think this is the first year he has carried the honours of the greatest success from a single hive. The late Mr. Reid, shoemaker, carried the honours one year, then Mr. Henshilwood, grocer, took the laurels of greatest success, and two years ago Mr. James Somerville, thatcher, won the honours. This year Mr. Rennie, who is regularly employed in a timber yard in attending to the engine, comes to the front with a higher figure than has ever been reached before, so far as I can recollect. The gross weight of 474 lbs. from one hive is "a pattern card" for all British bee-keepers. I commend it to the favourable notice of the bee-keepers' associations of this country, for it is well known that the hives and system of management through which such grand results and success were reached receive but little, if any, countenance and patronage from such associations, and yet the successful men of Carlisle and surrounding country are perfectly satisfied with their hives and system of management. This system has been successfully practised there for sixty years, and practised with increasing confidence.

To criticise the British Bee-keepers' Association is not my work, but I may be permitted to suggest a broader platform than is occupied at present. There are other excellencies beside the moveable-comb system, and surely it would be good policy to conserve them instead of attempting to cry them down. It has always appeared to me that the associations would exalt themselves in the estimation of the country if they encourage and hold up to view such examples of success as those now recorded. The introduction of the bar-frame hive is not the *summum bonum* in apiculture, but honey and profit. It would be pleasing indeed to see the associations turn over a new leaf and become less one-sided, less revolutionary in their aims, and broader in their sympathies and encouragements.

Some time ago three gentlemen from Yorkshire came here for an afternoon's talk about bees. One of them said, "When you die, Mr. Pettigrew, you will leave no lieutenants behind you." What nonsense! Five thousand successful men will stand by the straw hives and gain recruits and confidence all along the coming ages.

I shall be pleased if some of the Perthshire and Aberdeenshire bee-keepers send to this Journal an account of the honey harvest this year. The Scotch bee-keepers have been favoured with a finer season for honey than the English; and if the Stewarton and bar-frame hive gentlemen would send their reports we should be able to compare notes. I expect to receive more reports from Lanarkshire.—A. PETTIGREW.

HIVES AND HONEY AT THE DAIRY SHOW.

The following prizes were awarded at the Show that is now being held at the Agricultural Hall, Islington:—

BEE HIVES.—For the best *Observatory Hive*, stocked with Bees and their Queen.—1, J. A. Abbott. 2, Neighbour & Son. 3, C. N. Abbott. For the best *Moveable Comb Hive* for general use.—Price not to exceed 15s.—1, A. Blake. 2, S. J. Baldwin. 3, C. N. Abbott. For the best *Moveable Comb Hive* for Cottagers' use.—Price not to exceed 10s.—1, A. Blake. 2, C. N. Abbott. 3, S. J. Baldwin.

HONEY.—For the best display of Comb Honey in sections, exceeding 12 in number, each section not more than 3 lbs. in weight.—1, J. T. Thorne. 2, T. W. Cowan. 3, Neighbour & Son. Extra 3, W. E. Warren. For the best 12 sections of Comb Honey, each section not more than 3 lbs. in weight.—1, T. W. Cowan. 2, A. Rusbridge. 3, J. T. Thorne. *vic.* J. T. Thorne. For the best 6 sections of Comb Honey, each section of not more than 3 lbs. in weight.—1, T. W. Cowan. 2, C. N. Brooks. 3, S. Thorne.

Extra 3, J. T. Thorne. For the best exhibition of Comb Honey in one or more supers, of any material, *Sectional Supers* excluded.—1, A. Rusbridge. 2, T. W. Cowan. 3, Neighbour & Son. For the largest and best exhibition of Run or Extracted Honey in glass jars or bottles, each entry to consist of not less than 20 lbs.—1, A. Rusbridge. 2, R. Scott. 3, Mrs. R. Spence. *vic.* C. N. Brooks. For the best exhibition of Run or Extracted Honey in small glass jars, not to exceed 2 lbs. each, each entry to consist of not less than 10 jars.—1, R. Scott. 2, A. Rusbridge. 2, F. M. Smith.

BEESWAX.—For the largest and best display of Pure Beeswax, in bars or cakes, from 1 to 3 lbs. each.—1, C. N. Abbott. 2, W. Hunt. 3, R. Scott.

OUR LETTER BOX.

White Dorkings (R. S.).—There are both single-combed and rose-combed. We know of no difference in their qualities, but the cocks and hens must all have the same form of comb—that is, all must be single-combed or all double-combed. They are as good layers as the Dark-coloured Dorkings.

Bee Moth Destroying a Hive (K. B.).—Mr. Cheshire, to whom we submitted the comb you sent, says, "The history of your misfortune is undoubtedly as follows:—Your skep was strong and swarmed, and then sent off a cast. After this it was necessary that the new queen should take her bridal tour, during which she was from some cause lost. The bees were now hopelessly queenless, and death quickly commenced reducing their numbers and prevented them from covering and protecting the whole of their combs. The mother Moth (*Galleria Mellonella*) gained ingress and deposited her eggs, producing the noisome brood, some members of which arrived in the box containing the debris left after their destructive work. The bees have died out, and the grubs unhindered have reduced all to a wreck." We shall shortly publish some notes on this subject from Mr. Cheshire.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51°32'40" N.; Long. 0°8'0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1880. Oct.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sun.	17	30.091	52.0	49.2	N.E.	50.2	57.2	46.8	63.0	45.4	—
Mon.	18	30.082	48.8	47.4	N.	50.6	57.7	46.0	61.0	42.6	0.010
Tues.	19	30.065	44.6	42.5	N.E.	50.1	51.8	43.7	61.3	39.6	0.710
Wed.	20	29.668	33.2	33.1	N.N.E.	49.0	46.2	32.3	45.0	32.1	0.090
Thurs.	21	22.804	38.0	36.2	N.	45.9	48.0	29.6	83.1	28.0	0.170
Friday	22	26.736	40.6	39.7	N.E.	45.4	47.0	37.6	58.0	36.5	0.174
Satur.	23	29.784	43.3	40.6	N.E.	45.3	48.5	39.8	90.2	39.0	—
Means.		29.890	42.9	41.3		48.1	50.9	39.4	70.2	37.6	1.154

REMARKS.

17th.—Calm and overcast, slight fog in afternoon; clear fine evening; moonlight night.
18th.—Fine and bright throughout; moonlight night.
19th.—Rain in early morning; fair pleasant day, but overcast; rain again 9.30 P.M.
20th.—The rain which began last night turned to snow about midnight, and at 9 A.M. the ground was covered with snow nearly 2 inches in depth; snow fell until noon; fine with bright clear sky after 3 P.M.; starlight evening, lunar halo.
21st.—Very cold day, with bright sunshine.
22nd.—Wet early; overcast greater part of the day; high wind in evening; rain after 9 P.M.
23rd.—Rainy overcast morning, fine and bright after 11 A.M.; cold wind during the day.

The week is noticeable for the exceptionally early and heavy fall of snow. There is no previous instance of such a fall in October since observation commenced here in 1858.—G. J. SYMONS.

COVENT GARDEN MARKET.—OCTOBER 27.

WE have no report to make this week. Business quiet, with large consignments of American Apples on hand.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	2	6	to 4	6	Melons	each	2	0	to 4	0
Apricots.....	box	0	0	0	0	Nectarines..	dozen	0	0	0	0
Cherries.....	½ lb.	0	0	0	0	Oranges	½ 100	0	0	0	0
Chestnuts.....	bushel	12	0	16	0	Peaches	dozen	12	0	18	0
Figs.....	dozen	0	6	1	0	Pears, kitchen ..	dozen	0	0	0	0
Filberts.....	½ lb.	1	6	1	8	dessert	dozen	2	0	4	0
Cobs.....	½ lb.	1	6	1	8	Pine Apples ...	½ lb.	2	0	4	0
Gooseberries ...	½ sieve	0	0	0	0	Plums	½ sieve	2	6	4	6
Grapes	½ lb.	1	0	3	6	Walnuts	bushel	0	0	0	0
Lemons.....	½ 100	12	0	18	0	ditto	½ 100	0	0	0	0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.		
Artichokes.....	dozen	2	0	to	4	0	Mushrooms	dozen	1	0	to	1	6
Asparagus	bundle	0	0	0	0	0	Mustard & Cress ..	punnet	0	2	0	3	
Beans, Kidney	½ lb.	0	0	0	0	6	Onions	bushel	3	6	5	9	
Beet, Red.....	dozen	1	0	2	0	0	pickling	quart	0	0	0	0	
Broccoli.....	bundle	0	9	1	6	0	Parsley..... doz.	bunches	6	0	0	0	
Brussels Sprouts..	½ sieve	1	9	2	3	0	Parsnips	dozen	1	0	2	0	
Cabbage	dozen	0	6	1	0	0	Peas	quart	0	0	0	0	
Carrots.....	bunch	0	4	0	6	0	Potatoes	bushel	3	9	4	0	
Capsicums.....	½ 100	1	6	2	0	0	Kidney.....	bushel	4	0	0	6	
Cauliflowers.....	dozen	0	0	3	6	0	Radishes.... doz.	bunches	1	6	2	0	
Celery	bundle	1	6	2	0	0	Rhubarb.....	bundle	0	4	0	0	
Coleworts.....doz.	bunches	2	0	4	0	0	Salsafy.....	bundle	1	0	0	0	
Cucumbers.....	each	0	4	0	6	0	Scorzonera	bundle	1	6	0	0	
Endive.....	dozen	1	0	2	0	0	Seakale	basket	0	0	0	0	
Fennel.....	bunch	0	3	0	0	0	Shallots	½ lb.	0	3	0	0	
Garlic	½ lb.	0	6	0	0	0	Spinach	bushel	3	0	0	0	
Herbs	bunch	0	2	0	0	0	Turnips	bunch	6	4	0	0	
Leeks.....	bunch	0	3	0	4	0	Vegetable Marrows	each	0	2	0	0	



4th	TH	Linnean Society at 8 P.M.
5th	F	
6th	S	Sale of Bulbs at Mr. Stevens' Rooms, Covent Garden.
7th	SUN	24TH SUNDAY AFTER TRINITY.
8th	M	
9th	Tu	
10th	W	Sale of Nursery Stock at the Preston Nursery by Messrs. Jabez [Jones & Son.

THE VINERY IN AUTUMN.

THE growth of Vines should now be completed, as any made after this time will serve no good purpose. I like to see Vines cease growing in September, the time from then until now being occupied in ripening their wood. This is the great secret of success the following season. Many Vines showed prominent marks of the imperfect ripening last year, when they were started into growth this season; but nothing of the kind should be visible next season, as the autumn has been very favourable for ripening wood. Still there may be cases where the wood is not now so ripe as it should be, and no time must be lost in aiding its maturation. Remove every lateral growth and all decaying leaves. Keep a little fire on continually, and ventilate night and day. A fortnight of this treatment will do much in ripening the wood and insuring success next year. Vines bearing fruit will be benefited by the treatment, as it will be the means of preventing the fruit from decaying, and this is no small advantage at the present time, as it is just now that Grapes are most likely to decay. The fall of the leaf and the change of the sap affects them very much. In a month or so they will be past all danger.

The remarks by Mr. Taylor in a recent issue on the damping question were interesting, and no doubt correct, but his treatment must be carried out with great care, or more harm than good will follow. I approve of and practise watering the roots even when the fruit is ripe and throughout the winter, but under chosen circumstances. Were we to water the inside border during a rainy day, and a dozen or more similar days follow in succession, I know that we should be the losers by the operation, as no matter how fire heat may be employed in a vinery during wet weather, it is most difficult to keep the fruit from decaying, and the evil is still worse when the border is wet on the surface. Vines, however, do not need water either daily or weekly at this time; and when the border requires water I advise that the supply be deferred until the first bright morning when it can be done early, opening the ventilators at the same time, and keeping the fire on all day, so that the interior of the house may be well dried by night. This is a safe plan, especially in vineries where there is not enough fire heat to render the place dry in an hour or two, or even keep the temperature up to a given point in all weathers. Where the house is moderately air-tight, and the interior dry, I think the best way is to keep the ventilators quite close in damp weather. This I have found to do much good in many cases,

and is not so expensive as firing continually when there is no occasion for it.

All Grapes should be examined daily at the present time, and for the next month. There may not be more than two bad berries to take out, but by removing them it will reduce the chances of having more, as when they are only examined once or twice a week a number will often be found together, whereas had the first one that decayed been at once removed, it is likely that another would not have been destroyed.

It is remarkable that the Black Hamburgh is not more grown as a late Grape. It is a great favourite at all times owing to its excellent flavour, still it is hardly grown to meet any demand after the end of October. If I were to supply Lady Downe's, Gros Colman, and others of the kind to my employers in November and December, an explanation might soon be desired, as they, like the writer, regard quality and superiority before external appearance. Although, no doubt, Gros Colman might look better on the table than our Black Hamburghs, yet they would not bear comparison in flavour. Black Hamburghs lose their colour when they hang for a long time after being ripe, but they never lose their flavour, and one good dish of Black Hamburghs at Christmas is worth dishes of all the other late Grapes together. The Black Hamburgh has much to recommend it for late use. It will keep as well as any late Grape until the month of January, and it is certainly much easier to cultivate, so as to be thoroughly ripened and coloured by September or October, than any of the late varieties. No other black Grape is so well worth growing for supply from May until January as the Black Hamburgh, and I wish to impress this fact on all Grape-growers who love well-flavoured fruit.

It is surprising how fast mealy bug appears to be spreading in vineries. Many I know, who would not previously own to having such a pest on their premises, are now complaining of it. Many think it is during winter the attempt must be made to thoroughly destroy it; but this will not do it altogether. It must be searched for and killed all the year round. I have killed many more when the Vines were in leaf than when they were bare. Dressing the Vines with any mixture I have tried will not exterminate the pest, and now I prefer leaving the rods clean and killing all the insects from their first appearance after the Vines have been started into growth. In this way they may be kept from doing any harm. Fir-tree oil, so far as I have tried it, seems a greater enemy to mealy bug than any other insect, and I advise all interested in the matter to give it a trial. The Vines, glass, and woodwork may be washed with it in a very strong state.

Vines from which the Grapes were cut some time ago, and which now have the wood hard and brown and denuded of leaves, should be pruned at once. When this work is neglected until a short time before the Vines are started into growth again, it is very often imperfectly done. It does not take long to prune them, but the cleaning afterwards involves much more time; and if they are pruned and cleaned now, if it is seen in a month or two hence that they are not so clean as is desirable, they can then be attended to again before starting time.

Vines in pots are yearly becoming greater favourites. They may be grown in any kind of house. Those with no proper vinery might have plenty of Grapes by growing Vines in pots. Like many other plants, they can be bought more cheaply than

they can be propagated and grown at home. I do not mean to say many could not raise them with little expense, but they will not, as a rule, be so good as those specially prepared in a nursery, and it is by the crop which is obtained from them that we must judge their relative value. A good Vine occupies no more space than a poor one. One requires as much attention as the other, and if those of our own growing will only produce five or six little bunches to the ten or twelve large bunches to be had from the best Vines, those most to be preferred will not be difficult to decide. Many Vines in pots of last season's growth did not prove satisfactory this spring, but they will be very different next year, as everything has favoured their perfect development. Those intending to purchase Vines in pots should order them at once, and have them home as soon as possible, as I know from experience there is nothing to be gained but much to be lost by delay.—J. H. M.

HINTS UPON AND A SELECTION OF ROSES.

At the present time many, doubtless, contemplate either supplementing their stock or making a first attempt to cultivate "the queen of flowers," and to whom a few hints may prove acceptable. In the first place, then, I should advise those inexperienced in the matter to give their orders at once, for nurserymen, as a rule, work on the principle that the first come be first served, and what is more with the best plants. By ordering late in the season, not only is there a risk of receiving the weakest plants, but, this season especially, there is every likelihood that all the popular varieties, and which are those that beginners and the owners of small gardens really desire, will be sold out quickly. Where but few Roses are grown they should be of the best description, and from which the greatest number of blooms shall annually be taken. In my brief list, therefore, I shall enumerate those which not only are fine summer Roses, but which also will give some really good and very acceptable blooms during the autumn months.

If a general election of varieties took place the one to head the poll, all points considered, would very probably be Gloire de Dijon. A more serviceable Rose than the "old Glory" I do not know, for whether grown as a standard or a dwarf, up pillars, on walls, or rambling over shrubs, it seldom fails to give a more or less continual supply of useful if not always well-formed blooms from the commencement of the season till severe frost commences. Pruning lightly is a mistake often committed with this and other Tea and Noisette Roses. Long ripened shoots if laid-in to their full length will flower at nearly every joint; but unless they have been much bent or depressed, the growth that should supersede these exhausted shoots will not be formed. We prune our standard Gloire de Dijon rather closely, and in addition to good heads of bloom in the summer a few strong shoots are produced each with a terminal bud, which is followed by other blooms down nearly the whole length. These are usually taken out at the next pruning. Other good Teas are Madame Falcot, Marie Van Houtte, Homère, Souvenir d'un Ami, and Safranc, all of which do well either as standards or on walls, and are really invaluable for cutting when in a bud state, giving at least three times the number of blooms that the Hybrid Perpetuals do. The standards of these are pruned similarly to the latter, weak shoots being cut hard back, say to the second or third joints; but any very strong shoots are twisted round and tied-in, as hard pruning of these only induces the formation of still stronger growth.

Maréchal Niel fails as a standard, but is well worthy of a place on a warm wall. This, or part of the tree, requires to be hard-pruned occasionally, in order to secure long and strong shoots, from which only can good blooms be obtained. For this reason I should advise the owners of apparently worn-out specimens to cut them back next February to the main stems, as, although this will entail the loss of much inferior bloom the same season, they will be well repaid for the sacrifice in the next. It is the practice of some skilful rosarians to have at least two plants of Maréchal Niel, and to cut one back each alternate year, thereby invariably securing a quantity of fine blooms. Another extremely useful Noisette, and which, unlike the foregoing, is both perpetual-flowering and well suited for growing as standards, is Céline Forestier. I find its blooms particularly good for bouquets, but unfortunately that and the beautiful Lamarque are not so hardy as one would wish. The old and vigorous Noisette Jeanne Desprez on a high wall with a north-east aspect proves exceptionally hardy, and this season has given many splendid bunches of bloom.

Of Hybrid Perpetuals La France proves by far the most flori-

ferous, and is one of the best. Of this and Marie Baumann, Charles Lefebvre, Capitaine Christy, Alfred Colomb, Mons. Etienne Levet, Madame la Baronne de Rothschild, Jules Margottin, Général Jacqueminot, Duchesse de Caylus, Duke of Edinburgh, and Comtesse de Chabillant we had not only a goodly number of handsome blooms in the summer, but have cut many creditable examples up to the end of September, and they are still blooming. To these may well be added John Hopper, Duke of Connaught, Beauty of Waltham, Annie Wood, Madame Victor Verdier, Mons. François Michelin, and Prince Camille de Rohan.

All the above with me are perfectly hardy. They are principally budded on the Briar stock, which suits our deep and rich soil, but they succeed equally as well on their own roots. Those who have a light and rather poor soil should order Roses that are budded on the Manetti stock, taking care when these are received to bury the part where the bud was inserted just below the surface. The Manetti stock is not recommended for the Teas and Noisettes, and if dwarf plants are required they will be found to do well on their own roots. The evil attending planting dwarfs or those on their own roots is that they are seldom properly pruned, and for this reason are soon comparatively worthless. There are two methods of pruning dwarfs, each of which answers well. My practice is to prune them precisely the same as the standards—that is to say, all spray is taken out, weakly shoots cut to about the second bud, and the vigorous shoots to the fourth, or they are left still longer in the case of the over-luxuriant growth. Some of the latter is sometimes taken clean out, and also some of the old wood is shortened in, in order to well balance the head and to keep the growth constantly starting from near the centre. The other plan is to lightly shorten all the strong shoots, and to peg these down, the bloom springing up from the entire length. Fresh growths start from the centre, which are thinned out, and the best selected to take the place of those pegged down the previous year. One year's neglect upsets the whole system. The same may be said of neglecting to prune standards, but then these being so conspicuous are not so liable to be overlooked. If dwarf, pillar, and wall-trained Roses were as regularly pruned as standards they would not so frequently be seen in a flowerless insect-infected condition, but would give equally as good displays in their respective seasons as others.

I often think that if many gardeners and amateurs knew how easily Roses are struck from cuttings we should see a great many on their own roots both in pots and in the open ground. All that is necessary is to select a few well-ripened shoots at pruning time, taking them off with a "heel"—that is to say, with a small piece of the older wood attached, and shortening back to about four or five buds. These may be either dibbled under handlights placed at the foot of a north wall, or in the open ground in the same position. A little road grit may with advantage be used, and the cuttings should be inserted firmly.—W. IGGULDEN.

PEACH BLISTER AND POTATO DISEASE.

THE discussion on "Fungi, a Cause of Disease," is of much greater consequence than at first appears, for instead of complaining that our crops are destroyed by some mysterious occurrence, we should search out the actual cause and endeavour to find a remedy. It is well known that there are certain forms of the lower orders of the vegetable kingdom that are present everywhere, and only require suitable conditions to bring them into activity; therefore if we carefully make our observations it will not be difficult to discover what is most favourable to their existence, then we should endeavour to bring about a state of things that will act against them.

It is generally acknowledged that vigorous health is antagonistic to disease, therefore I consider "S." is reasonable when he states that unripe wood is favourable to Peach blister. In that case imperfectly matured tissues form the condition congenial for the fungus, which quickly germinates, and we see the effect in the blistering of the leaves. It is, therefore, plain we should insure the ripening of the wood as much as possible, bearing in mind that excessive luxuriance or want of heat is calculated to render the tissues imperfect. Why the blister does not appear so much under glass is because the wood ripens better, the Peach being a native of a warmer climate. If our seasons are not dry and warm the wood does not ripen sufficiently to resist disease.

For the Potato disease the condition is apparently disorganised tissue. We find heavy clays, low undrained ground, thick planting, crowned with a wet season, most favourable to the disease. What is more reasonable than that we should seek the reverse of those conditions, and plant our hills and lightlands; then we should have Potatoes, not very large, but free from disease. It is desirable to select well-formed suitable-sized Potatoes for planting; the very

large and very small are not fair samples of the variety you wish to increase. The best early Potatoes are sent to Covent Garden market from Lisbon, and are grown in shallow sandy soil, and are quite free from disease. Then if light soils are so good for early varieties why not for the late also? The crops may not be so great, but a small quantity of good tubers is of more value than a large but diseased crop. It is plain we should select a warm position and light land as the best preventive of disease. We should then not have to complain of the *Peronospora* which we so frequently incautiously encourage by planting in unsuitable ground, thus producing disorganised tissues, which, combined with congenial atmospheric conditions, render the plants liable to the attacks of the fungus. Decay commences, and what we call the Potato disease is simply the result of the fungus acting upon and destroying the tissues.—R. C.

THE TUBEROSE.

ACCORDING to Loudon this beautiful flower was introduced into this country fully two centuries and a half ago, and gradually came into favour among gardeners—not so much, perhaps, from its merits as a plant and easy culture, as from the beauty of its flowers. I, however, think it is not grown by gardeners so much as it ought to be, hence my reason for calling attention to it. There is a tendency among us to cultivate plants that possess good habit and ornamental foliage combined, with but a moderate amount of merit as to the flowers they produce; but those whose ambition it is to grow the most beautiful flowers must certainly include the Tuberose. I have grown it for many years and cannot yet find a substitute for it. Even the lovely *Stephanotis* and *Gardenia*, useful as they are, have not supplanted it.

Purchase the bulbs of a respectable nurseryman, who will supply good, sound, well-ripened bulbs reasonable in price. Now is a good time to obtain them for early spring blooming. If in quantity divide them into two or three batches for succession. Pot the first at once, either three bulbs in a 32-sized pot, or one good bulb in a 48-pot. In either case use a rich loamy soil, or if the loam is poor add one-third of well-decayed manure that will pass through a quarter-inch sieve, and a little sand. Pot rather firmly, afterwards place them in a cold frame, and cover them with fine coal ashes or some other material that will run between the pots. This will keep the soil sufficiently moist for rooting to commence, which will begin in a fortnight. As they advance take them out, and for a few days place them in a position where they at first have but a moderate light, such as under the stage of a plant house. It will be seen that the young growth will gradually assume a natural colour, when the plants may have the full light and heat of an intermediate house. A stove heat is more than they need, and to have them in flower quickly a cool greenhouse is not sufficient. After making a little foliage the flower spikes begin to appear, and as they grow to from 2 to 4 feet in height and are very slender, a stake must be placed to each. Each spike if good will produce two dozen blooms in succession, pure white with a most delicious fragrance.

There are three or four so-called good varieties in cultivation, but the best are the old *Polianthes tuberosa* and *P. tuberosa fl.-pleno*. When in bloom they are conspicuous if placed in the conservatory with the spike of flowers arising just above other plants, but they would be principally required for cutting. The perfume is strong, therefore for room or any part of house decoration too many must not be employed at one time. During growth the plants are subject to the attacks of green and black aphides, which infest the spikes of flowers. Liquid manure given twice a week will be found to benefit the plants, and by potting in succession they may be had in flower during the greatest part of the year. Some cultivators assert that if after flowering the bulbs are well ripened off they will flower as well another year; but although I have tried that plan I could not find that they were to be depended on, as not above one-third of the bulbs flowered, and the spikes were short and the flowers small. No doubt most florists and growers for market around large towns find a ready sale for the Tuberose flowers. They are among the most useful for cutting for bouquets, wreaths, and buttonholes, as they are sweet-scented, pretty, and last a long time.—THOMAS RECORD, *Sheffield*.

TRANSPLANTING FRUIT TREES.—In the last issue of the Journal I read some instructions regarding transplanting. Let me say for the encouragement of any who may have such work before them this winter, that I lifted a row of what had been dwarf standard Apple trees, but which have now become large. The soil being very stiff I had a large tub with water at hand into which every tree root was laid and well washed, all bad root

or canker was removed, and the trees were then planted as described by your correspondent. The result has been that we had a crop of Apples last season, whereas these trees had previously seemed to be decaying.—A. B.

FUNGI A CAUSE OF DISEASE.

I VENTURE to say a few words with regard to the discussion in the *Journal of Horticulture* between Mr. Luckhurst and "S." about the Potato disease, cause, and effect, and whether fungi are the results of disease or the cause. It seems to me that there is a third point not touched upon. The cause of a disease is not the same as the disease itself, and the result or effects produced by a disease is, again, different from the cause of the disease, or the actual disease itself. Take, for instance, disease in animal or human life. Infection is the cause of disease, as in the case of cattle plague or pleuro-pneumonia. The result of the disease differs according to the treatment, or the power of resisting it, or the malignity of it. Some diseases are far more infectious than others; certain states of vitiated atmosphere and climate induce disease in many cases; but we must distinctly draw a difference between the cause or origin of disease, the disease itself, and the results. I need not enter upon so wide or difficult a subject as the infectious natures of disorders, such as typhoid and scarlet fevers, small pox, &c., but it is an undoubted fact that the most dangerous diseases are often the most insidious, and arise from apparently small causes.

The question in discussion between Mr. Luckhurst and "S." is whether fungi are a cause or only a result of disease. I presume Mr. Luckhurst would wish us to infer that it is owing to a previous disease or injury to the plant that fungi are produced—in other words, that the plant is diseased, and owing to the disease the fungi grow. Why, however, in the case of the Potato disease was it unknown in England previous to a particular year, 1845? and why is that disease, which was then introduced into England, always accompanied by the attack of the *Peronospora infestans*? Our leading fungologists, who have carefully examined the question, have certainly decided that the injury to the Potato plant is caused by the spread of the fungus by means of spores and mycelium through the tissues of the plant, the leaf, haulm, and tubers; that as "A LINCOLNSHIRE POTATO GROWER," in the *Journal of Horticulture* of the 23rd September, in calling attention to an article of Mr. Worthington Smith's in the *Agricultural Gazette*, points out that the spores of the *Peronospora* are present everywhere, and that the resting spores have great vitality. Only those who have carefully studied the question have any idea of the number or the minuteness of the spores of the various fungi, and this which attacks the Potato seems to be a remarkable example of it. There are certain stages of growth combined with atmospheric influences, such as moisture, warmth, &c., which predispose the plants for the reception and growth of the fungi. We may thus say with Mr. Luckhurst there are causes which help the disease; but surely these causes are not the disease itself, but the injury to the plant and the destruction of the crop is caused by the growth of the fungus. The fungus cannot in my opinion be called the result of the disease, but is the actual means by which the Potato plant is destroyed and the tubers made unfit for use, and therefore may be considered as the disease itself. There are kinds of Potatoes no doubt less liable to the disease than others, but experience has proved that none are altogether capable of resisting it; and though in the Scotch Champion, Magnum Bonum, and others of that character which have harder and more fibrous haulms, the tissues seem less favourable for the growth of the fungus, still no Potato is disease-proof, and we cannot, I think, under these conditions separate the fungus from the disease itself, or say that the fungus merely grows on plants previously diseased, which seems to be the line of argument Mr. Luckhurst takes. The same seems to be the case in Peach-leaf blister. Cold winds are the predisposing cause, but the disease itself is from the growth of fungus, which finds the leaf injured by the cold winds a suitable nidus; the result is the destruction of the leaf by the fungus, and the disease often spreads to other leaves on the same tree which were not previously injured by the cold winds.

I had written the above remarks previous to reading the Journal of the 21st, which contains another letter from "S." on the subject. I think what he there says should be sufficient to show Mr. Luckhurst that his statements with regard to fungus being always or even generally the result of disease will not hold true in the generality of cases. In the *Journal of Horticulture* 14th Mr. Luckhurst tried to explain his original statement, where he uses the expression "In every instance the idea is erroneous," by saying his statement was only "general" as far as it referred to the three forms of disease mentioned. Certainly the words "in

every instance" could not without this explanation be supposed to refer only to the three in question; but even if he intended his remarks only to be so applied, it seems very bold and decided to affirm that the generally received opinion with regard to the Potato disease and Peach blister is altogether erroneous. I have certainly seen the foliage of the Potato plants injured by the mycelium, and the spots so produced, long before the legitimate functions of the foliage had been fulfilled. There can be very little doubt in the minds of most persons who have taken notice of the spread of the disease, that under certain favourable atmospheric conditions and on wet or cold soils the disease will progress most rapidly, especially when the plants are too close together or growing in confined spaces, and that the proper functions of the leaves and haulms are arrested before the tubers have completed their growth. Mr. Luckhurst's remarks about the Dr. Hogg Peach not suffering again from the blister after it was covered with glass does not in the least prove in my mind that the disease itself is not caused by a fungus, or rather that the blister is ever found without the fungus. There can be little doubt the cold spring winds predispose the leaves to this disease, but are not the actual cause of the disease.

While on the subject of Potatoes and Potato disease, I venture to say that many Potatoes vary so much from the nature of the soil in which they are grown and the treatment received, that the sorts which succeed in one place do not come to perfection in another, or are much deteriorated. I have at one time or another tried a great many varieties, and have found that many which succeed in good soil and favourable seasons are inferior in others. Unfortunately some of the best varieties, as the Ashtop Pluke, Lapstone, Snowflake, Myatt's Prolific, and others, are more liable to disease. The Scotch Champion have proved very good with me in light soil, but they require plenty of room so as to have air and light; the same may be said of the Magnum Bonum and Red-skinned Flourball. It is a pity that in judging Potatoes more attention is not paid to quality rather than quantity, as in many instances I have seen the premier prizes carried off by Potatoes not fit for a gentleman's table, and this, if I may judge from the accounts given, was much the case at the last large Exhibition at the Crystal Palace.—C. P. P.

No one can fairly object to positive statements provided they are supported by a reasonable show of facts, but when a generally accepted opinion founded on undeniable evidence is assailed something more than mere positiveness is requisite. Every man is entitled to enjoy his opinion, but before making it public he should at least be at the trouble of obtaining proofs of sufficient weight to render it worthy of consideration. This I maintain Mr. Luckhurst has not done, for I fail to perceive in the whole of his communications one fact that is not conformable to the fungoid origin of the Potato disease and Peach blister. I, too, write "for gardeners and gardening," and it was a desire that doubtful statements should not go unanswered which first prompted me to enter on this discussion. Mr. Luckhurst must be aware that he occupies a high position among horticultural writers, and consequently an opinion from him would possess much more weight than from anyone of less acknowledged ability as a practical man. It is for this reason that he should be careful in what he writes to avoid propagating errors which are always likely to be accepted when supported by authority.

In his last communication he has gone wide of the subject, whether from inadvertence or a desire to obtain a champion for his cause I know not, but in either case it is plain that he ineffectually endeavours to draw support from "NORTHERN GARDENER'S" remarks upon lifting Potatoes, which had no reference to the cause of the disease. Why does Mr. Luckhurst still continue to ignore the questions I put to him? I have met all his statements and questions fairly and openly, why does he not act similarly? However, even at the risk of repeating myself, I submit the following facts to his consideration, and I challenge him to prove them incorrect before he can reasonably assume to have established his opinion. The fungus *Peronospora infestans* produces by its action on the substance of the stem, leaves, and tubers of the Potato that condition which we term Potato disease. The same disease first appeared in this country attended by the fungus; neither had been previously known here, and the disease is never found without the fungus. Peach blister is similarly attended by the fungus *Ascomyces deformans*, which is known to possess the power of injuring the tissues of the leaves, producing the appearances that characterise the disease; whereas cold wind, though acting injuriously upon tender foliage, does not produce a similar condition, but causes shrivelling or a brown scorch-like appearance.

As to the conditions that favour the growth of these two fungi,

the following facts are generally accepted and are in accordance with my experience. First, regarding the Potato disease, it has been proved that a particular temperature and moisture are requisite; and further, if the former be sufficiently high, the greater the abundance of moisture the more prevalent and disastrous the disease proves, consequently anything that tends to promote the accumulation of water in the soil or atmosphere has an equal tendency to encourage the growth of the fungus. When moisture is so abundant the plant becomes charged with water, either rapid growth ensues, thus forming loose tissue that the mycelium of the fungus can readily penetrate, or the flow of the sap becomes temporarily checked, as, if the moisture is not disposed of by evaporation or growth, absorption is diminished, and there is an approach to stagnation that may also be a condition suitable to the fungus which then commences the destruction of the tissues. We can on these views understand why in very light, well-drained, or sandy soils there is little disease, that wide planting is beneficial, and that those varieties with erect firm woody stems and abundant foliage are better enabled to resist the attacks of the fungus, because they can dispose of a great quantity of moisture either in growth or by evaporation from their more extensive foliage surface.

"INTERLOPER'S" statement that cells are burst by the absorption of abundant moisture is utterly indefensible. Cells are connected with each other, and it is through the walls that the sap passes in rising to the leaves. The growth or degree of evaporation from the foliage determines the rapidity of the absorption. When the former diminish the latter decreases also; so that as the amount of moisture in the cells is determined by the general requirements of the whole plant, the quantity will be greatest when the demand is greatest, provided there be sufficient moisture in the soil; but as then the sap is rapidly passed on to supply other parts of the plant it has no tendency to cause bursting; consequently, according to "INTERLOPER," the cells must be burst by an amount of moisture which is less than the greatest they can contain—an obvious impossibility. I may remark that most of "INTERLOPER'S" other statements as to the conditions under which Potato disease appears are very reasonable.

I have previously stated that I regard unripened wood as one of the chief conditions that favour the production of Peach blister, and from further observation and reflection I am confirmed in that opinion, but the subject requires investigation. Mr. Luckhurst might have seen from my remarks on this point at page 368 that I considered Peach trees under glass are less liable to blister owing to the wood being better matured.—S.

LAPAGERIAS AND OTHER PLANTS AT SOUTHGATE.

"WHY do they call you Lapageria Tom?" was the question put to Mr. Howard, the very successful owner of the largest Lapageria manufactory in the world. "I don't know, except that my name is William," was the quaint reply; and having heard so much of him and his work I very cordially accepted the offer of my excellent friend Mr. Horace Mayor of Winham Hill, when staying with him, to drive me over to his establishment. Now I had seen Lapagerias, as I have stated, at Messrs. Fisher, Son, & Sibray's at Handsworth. I had wondered at the numbers of plants, at the rapid manner in which they were propagated, and the successful manner in which they were grown; but having seen both places I am at a loss what to say. The method of propagating is the same—viz., that of growing them in beds and layering the shoots, from the axils of which a plant starts forth, so that multiplication proceeds very rapidly. But there is one difference in the method of culture—they are grown in a much cooler temperature at Southgate than at Handsworth. Indeed they are treated almost as if hardy, certainly not regarded as tender as a Geranium, and I saw a whole frameful of plants which had never had any fire heat. Houses are specially devoted to them, where they are trained up to the roof much in the manner in which pot Vines are found in May, and in this way they bloom most profusely—ropes of bloom with twenty or thirty blossoms on them; and on turning out one of the pots to show me how they rooted I was astonished to see the mass of strong fleshy roots that they contained, in fact ready for a pot twice the size. The object, indeed, of Mr. Howard seems to have been to get as much health and vigour into the roots as possible, and this he has attained with a corresponding strength of growth. It seems that one has to be very particular in touching the young shoots, for they almost invariably die away when that is carelessly done. Such success has been obtained both at Sheffield and here in the propagation of Lapagerias must soon bring this very beautiful plant within the reach of everybody who has a greenhouse.

Another speciality of Mr. Howard's is the very beautiful Chrys-

anthemum frutescens Etoile d'Or, which he introduced from abroad, and of which he has now somewhere about ten thousand plants; but even this is not enough, and he had telegraphed that very morning for a thousand more. These are grown more for the sake of their blooms than for the plants themselves, and by judicious management they may well nigh always be had in bloom; and for the bouquet makers they are at all times most valuable, while as pot plants able to stand the heat of a sitting-room they are also most desirable. A large houseful of *Adiantum cuneatum* for cutting shows how valuable this pretty Fern is. All the accessions that have been made to the class do not displace it, *A. gracillimum* and *A. farleyense* are not nearly so much appreciated.

Another plant to which Mr. Howard has devoted considerable attention is the perpetual-flowering Carnation. He has endeavoured to procure some which will not deserve the name of Tree Carnations, but by the dwarfness of their habit be more readily accessible. It is not every greenhouse that can house these tall plants, but most amateurs would welcome some not so tall, and this Mr. Howard has succeeded in obtaining. Houses were filled with nice stubby plants which grow about 18 inches high, and these he is preparing to send out in six different colours. These come in very usefully for cut flowers.

The place itself does not impress you much as you enter it. It is in a gravel pit, and no end of troubles have been occasioned by the water; but rough though it seems, you very soon find out that it is in the hands of a man who knows what he is about, and whose skill and industry will surmount any difficulties he has to contend with.—D., Deal.

THE CHAMPION POTATO IN THE NORTH OF SCOTLAND.

It is surprising how the cultivation of the Champion Potato has spread over the Highlands of Scotland. It is in general favour both with farmers and cottagers, the latter also esteeming a variety they call Red Rocks.

I planted for the first time in the garden here one peck of Magnum Bonum, from which I obtained three bushels of tubers of excellent quality, not so waxy as one of your correspondents describes them. I hear that at the Inverness Farmers' Grain and Root Show Magnum Bonum was first and Champion second in the late Potatoes. I hope to see in two or three years that the Magnum Bonum is as generally known in the Highlands of Scotland as the Champion is, both of which are the best disease-resisting Potatoes we have.—ANGUS McDONALD.

ABNORMAL GROWTH IN THE GRAPE VINE.

REFERRING to Messrs. Taylor and Iggulden's notes on this subject, may I be allowed to say that the Vine alluded to here as having been rooted at the upper end and then severed from the original roots was so treated by way of experiment, and that the idea was perfectly original, as was also the thought of rooting the Vines at all in that way? but I did not, nor do I consider such an idea more than a natural one for any man of ordinary intellect. Had I thought otherwise my pride would have received a severe shock on a friend referring me to page 810 of the *Gardeners' Chronicle* for 1875. There I found recorded that Mr. Rochford, Page Green, Tottenham—a successful market cultivator—had been practically testing for years what I considered my own discovery. To say that I was not at first a little disappointed would be contrary to human nature; but, on the other hand, to counterbalance my disappointment I had the opinion of a practical man that my intended discovery was already a success, and so I went on with it in greater confidence. Now I am more enamoured of it than ever, and that for a very good reason—viz., that the Vines evidently appreciate being rooted at each end, as is shown by the production of finer Grapes.

The house in which the experiment has been carried out was originally a lean-to, but the Vines did so well that the back wall was taken down and the house made into a span, the Vines being trained down the roof, and as soon as they reached the bottom a border was made and the tops pegged into it. The house is 51 feet long and 25 feet in width; the length of rafters, both sides, being 36 feet. There are ten Vines in the house, each Vine having two rods, so that each Vine has from border line to border line upwards of 40 feet run of rods, and each Vine three distinct sets of roots, caused by the rooting of each rod at the ends. The one Vine that was severed after the first season's rooting was merely tried to test its fruiting powers when turned upside down. The portion left was 6 feet long, and the same season carried and finished off perfectly four good bunches of fruit, certainly as good

as those on the parent Vine. Perhaps I ought to add that the tops, or rather what were the tops, the first season persistently pushed young shoots through the soil, which were as persistently rubbed off, and now they manifest no disposition to throw up suckers or shoots, and the Vines are of equal strength throughout.

I am not a scientific man, so cannot solve the problem as to the changed route and circulation of the sap, hence I must leave that to the vegetable physiologist. It is sufficient for me that the experiment has been successful as regards the production of fine Grapes.—W. WILDSMITH, *Heckfield*.

THREE GOOD ORCHIDS.

ODONTOGLOSSUM ROEZLII.—Though this species may not be so useful as *O. cirrhosum* or *O. Alexandrae* it is nevertheless one of the finest of the genus, and from the easiness with which it is cultivated it is one of those sorts which every gardener may safely take in hand. I have not tried it in a lower temperature than 55° throughout the winter; perhaps 5° higher would be better, as it is constantly growing. Our plants are grown about 9 inches from the glass. It does not root deeply, but produces numberless rootlets through the surface of the potting material. It is very necessary to keep the soil always in a fresh condition. When repotting I wash the old material from the roots and place the plant in pots just large enough to hold the roots, pressing the soil in rather firmly. The compost used is the fibres of peat, living sphagnum, and small pieces of charcoal in about equal proportions; in this I find it roots freely and requires a good supply of water when in full growth. At no period of the year should water be entirely withheld.

EPIDENDRUM VITELLINUM.—This very distinct Orchid is another species which ought to be found in every garden. I have heard it called difficult to manage, but cannot say that I have found that correct. I commenced with a stock of newly imported plants, which arrived in the early part of the year, and would advise those who intend to add this species to their collection to obtain their plants the same way. They can be bought at a much cheaper rate than established plants, and are very easy to establish; the second season's growth in many of the plants giving larger bulbs than those made in their native country. When received, after washing them, nearly fill as many pots as will be required with clean potsherds, on these place some sphagnum and a small portion of a soil composed of peat and sphagnum, rather more of the former than the latter, adding a few small pieces of charcoal or potsherds, then place the old roots so that the plant may be kept firmly in its place after the rest of the compost has been added. The base of the old pseudo-bulbs may be slightly buried, which will cause them to break freely; keep them well above the rim of the pots, and water only when the soil requires it; place the plants where they can at all times have a supply of fresh air, and when they are close to the glass I find them do very well in the same temperature as cool Orchids, only they will not bear a stagnant atmosphere. After the young growths have made some progress the second year turn out the whole stock and repot them if necessary, removing the whole of the old soil; do not drain the pots so much this time, and give the roots a greater depth of soil, supplying water when it is really required. Under such treatment I have found this Orchid succeed very well.

CYPRIPEDIUM INSIGNE.—This is another easily cultivated Orchid, and one that well repays good treatment. Our plants are repotted every second year; if they are allowed to remain longer without repotting, the flowers are much smaller than they ought to be. I treat these like ordinary plants in the mode of potting. For plants in 6 or 7-inch pots about 1½-inch depth of drainage is given; the roots of the plants are washed clear of all old material, and the new potting soil is packed equally amongst the roots in repotting, leaving half an inch underneath the rim of the pot clear for receiving water. The compost I employ consists of peat, sphagnum, dry cow dung, and broken potsherds, and the second year a surfacing of cow dung is given the plants, and soot water used for watering. About twice a week is as often as they require water. After flowering our stock is placed in a cold vinery, and in spring the plants are kept warmer. Through summer a pit is found for them, and when in flower they may be placed wherever they may be required.—R. P. BROTHERSTON.

WINTERING FUCHSIAS OUTSIDE.—If there are any who have Fuchsias outside at present, or who have not space sufficient to secure all under cover, I would recommend them to make a trial of bedding-out their plants in the mixed border. I take them out of their pots, prepare and manure the spaces intended for them,

and make the soil as loose and as friable as possible. This is the only care or trouble necessary, except to cover or mulch round the roots with cocoa-nut fibre, coal ashes, or fine cinders; or what I consider better is dry peat soil made into a conical little mound. The centre of this remains dry a long time thus built, and while dry no frost will penetrate it. If any of those substances cannot be readily procured fine hay, bracken, &c., may serve as the best substitute. Compare this with the ordinary custom of wintering under the stages, where space can often be but badly spared; where the plants are often, too, if in a cold house, as badly frozen almost as outside; where drip from the roof or from the watering destroys the majority of the best plants; or what is even worse, where the heat is maintained and the plants are prematurely forced into leaf and flower. The flowers produced by plants established in the open ground have been much superior to those produced by plants in pots.—W. J. M., *Clonmel*.

LAWN MOWERS.

MESSRS. JAMES CARTER & Co. do not seem quite satisfied that I did not, in my few remarks on this subject on page 374, give more striking proof of the advantage of leaving the grass uncollected. Our use of the box is limited to one round of the machine next the flower beds and by the side of walks; and if Messrs. Carter & Co. have ever used a mowing machine at the rate of four miles an hour they would observe that the machine does not deposit the grass on the exact spot it was cut from, nor in the exact wake of the machine; so that I may say that our grass is virtually all mown without the box as far as the distribution of the grass is concerned.

My idea of a well-kept lawn is that it should never appear to need mowing. It should always be done before it needs it; and if I were to see a man mowing without a box where the grass is so rank that he has to sweep it up afterwards I should not have a high opinion of that man's intelligence.

I advocate having the grass uncollected on the score of economy as well as for the benefit of the lawn. With a 20-inch machine it takes us five hours each time to mow without the box, but if we use the box it takes us an hour and a half or two hours more; so that it amounts to this, that we can very nearly mow three times without the box during the time we would be doing the work twice with it. The grass is thus always in order instead of being out of order two days a week; the work is much easier, and there is no necessity for applying lawn manure in the spring.—R. INGLIS.

STILL MORE ABOUT POTATOES.

ALTHOUGH I am not at present engaged in Potato cultivation I shall not say anything in these notes that has not been gathered from the most authentic sources in this district—the fertile tract of land near the seacoast, and stretching from the Tyne to the Wear, anciently known as Werewickshire. The soil here is admirably adapted for Potato-growing; overlying as it does the magnesian limestone, it seldom becomes waterlogged where any attempt at drainage has been made. The great breadths of Potatoes in this neighbourhood are all grown by farmers, market gardeners do not grow them extensively. Last year Champion was the only variety that paid well and that withstood the attacks of the disease. This year, as might have been expected, Champions were largely planted; what the results will be yet remains to be seen. Champions in this district are supposed not to be fit to lift till the latter end of October. Regents and Victorias are perhaps next in demand here, nearly everybody having his own strain of each variety. One of my immediate neighbours sold a breadth of Dalmahys in the latter part of August, and they were lifted in the early days of September. The tubers were very slightly touched with disease, although the plague had been plainly visible in the haulm for several weeks. The dealer who bought them informed the writer that the yield was 8 tons an acre, which is considered a heavy crop here. If people would give the absolute yield of Potatoes, instead of "at the rate of," it would be more satisfactory—of course I am alluding to large growers; a small grower can only give relative values. The price, I had almost omitted to say, was £19 per acre, the grower ploughing the crop out, and the purchaser doing the rest of the work, such as sorting, weighing, carting, &c.

The same farmer has a breadth of Champions, for which he wants the same price per acre, but for which his highest offer is only £15. The writer had the pleasure of going over the field with the grower and trying the Potatoes, which certainly did not appear to be either such a heavy crop, such large tubers, or such good quality as the Dalmahys, but they were almost free from

disease both in haulm and tuber. The disparity of the price received for one crop and that offered for the other fully bears out Mr. Beachey's assertion that other varieties sell for more than Champions, but I cannot admit that they sell for £5 or £6 per ton. One farmer here is selling his crop by weight at the low price of £2 10s. per ton; another is receiving £3, both for Regents. On the farm above mentioned, where the Dalmahys were grown, Magnum Bonum has been tried as an experiment. The number of tubers per root is very great, but they are not large enough for market purposes, and are not, at least now, of good quality, but are free from disease. They will be tried again next year at 4 feet apart, this year they were rather crowded. A neighbouring grower, who this year planted largely, is lifting to-day (19th October) his Regents. I am afraid they can scarcely be called a crop, as all told they will not weigh 5 tons an acre, and quite one-half of them are diseased. They are being disposed of at £3 per ton.

Mr. Beachey says that "disease is (practically) nil" in Devonshire. In Werewickshire it appeared with the sultry humid weather in the latter part of August; the days were still and quiet, not extraordinarily hot, and the nights were warm and foggy. Disease under these conditions made rapid progress in the haulm, but did not affect the tubers till the deluge of September seemed literally to wash it down to the roots. After the second week in September the fall of rain was discontinued, in fact has been ever since with the exception of light showers now and again, and we had bright, warm, breezy weather, which partially checked the disease. It would be difficult to over-estimate the value of a breeze of wind moving the haulm of a crop of Potatoes all the season. I have not been able to discover much progress that the disease makes under such conditions, its most rapid strides are made in still weather. The farmers may, perhaps, be blamed for not lifting their Potatoes at the first sign of an attack of the enemy, but farmers are like other folk—they know their own affairs best, and the changeable weather came upon us just in the middle of the harvest, and no doubt they did everything to the best of their judgment to secure first their corn, which was no easy matter, and then the rest of their crops.—PETER FERGUSON, *Mere Knolls, Monk Wearmouth*.

ANEMONES.—No. 1.

THIS is a somewhat extensive genus, mostly confined to the temperate regions of the globe, some species being found at considerable elevations. The popular name, Windflower, is derived from the old superstition that they only opened their flowers when the wind blew; but as they are found in exposed situations it would be difficult to find open flowers when the wind does not blow, especially as the majority bloom during the early spring months. They may be briefly described as dwarf-growing plants with tuberous roots, which in some species are little more than thickened rootstalks, but in others become spread out into large, irregular, flattened masses. The leaves are twice cleft; the scape erect, simple, or branching; involucre composed of three leaves. When the stem is unbranched the flowers are all within a common involucre, but when it is branched each flower is furnished with one. In the case of single flowers the petals are entirely wanting; the absence, however, is well substituted by the large highly coloured sepals. Under cultivation Anemones readily become double-flowered when the petals are numerous, being developed at the expense of the stamens. The genus has been divided into three groups or subdivisions—viz., 1, *Anemone*; 2, *Hepatica*; and 3, *Pulsatilla*. *Anemone stellata*, the Star Anemone, and *A. coronaria*, the Poppy Anemone, are largely cultivated as florists' flowers both in the single and double state, the last named especially having received great attention at the hands of the French and Dutch growers. They are all plants of easy culture, thriving best in a rich light loam, but seldom fail in any ordinary garden soil. They may be increased by divisions of the root or by seeds.

A. alba.—A rare species at present in English gardens. It is a dwarf plant, seldom exceeding 6 inches in height, with divided leaves, flowers large and pure white. It flowers in June, and is well represented in the accompanying engraving. Native of Siberia.

A. alpina.—This is a bold-growing species in a cultivated state, and one of the most plentiful plants in its native habitats, being distributed from the base almost to the summit of the mountain ranges of Europe. It is found to vary from a few inches to about 1½ foot in height, the latter being its usual proportions under cultivation; hence it forms a beautiful clump in the border, where I prefer it to the rockery. Leaves with deeply cut segments; flowers large, white inside, tinged with light blue

on the exterior; sepals slightly spreading. Flowering from April to May. Alps of Central Europe.

A. alpina, var. *sulphurea*.—A plant exactly resembling the type, but with pale yellow flowers, forming a pleasing contrast. It flowers at the same time as the last.

A. angulosa.—This fine species belongs to the group *Hepatica*, and it resembles in many respects the well-known *Hepatica triloba*



Fig. 76.—*Anemone alba*.

of our gardens, from which, however, it may be readily distinguished by the size of its flowers and by the large palmate leaves, which are five-lobed and deeply toothed, the flowers $1\frac{1}{2}$ inch in diameter, with deep sky-blue sepals. It forms a lovely border plant, attaining a height of 9 to 12 inches, and blooms during the spring months. Hungary.

A. apennina.—A lovely plant, by some considered an indigenous species; but although naturalised in a few localities it cannot be claimed as British. It attains a height of about 6 inches, and soon forms beautiful clumps of vivid green spangled with brilliant azure blue flowers. March and April. Italian Alps.

A. baldensis.—This is both a rare and beautiful plant. It should be planted in a sunny open spot in the rockery. Leaves deeply divided into linear lobes. Flowers large and spreading, pure snow white, the exterior suffused with rosy pink. April and May. Austrian Alps about Kaernten.

A. blanda.—This beautiful plant slightly resembles *A. apennina*. The leaves, however, are scarcely so high, thicker in texture, and deeper green. Flowers large, deep sky blue. January and February. Greece.

A. coronaria.—Of this species there are now an immense number of varieties both double and single, and of nearly all shades of colour from brilliant scarlet, crimson, purple, blue, and rose, also flaked and striped flowers in all shades. The single flowers are Poppy-like, whilst the doubles have the sepals formed into an outer guard like those of a double Hollyhock. These varieties are very effective both as border plants and also as spring bedders in the geometrical garden. The roots should be planted during the months of October and November, and should the weather be very severe a slight protection will be of great advantage. This planting will produce a brilliant display in early spring, and if a succession of these flowers is required another planting in the

beginning of March will keep up a fine display until the month of June. When the leaves have entirely decayed and the roots ripened they must be taken up with a fork and placed in a shady place until thoroughly dried, and then stored away in some cool airy place which is not subject to any great variation in temperature, where they may remain until again required for planting. The typical form, which is shown in fig. 77, has twice-cut deep green leaves; flowers Poppy-like and large, variously coloured—usually scarlet or some shade of purple and blue—with a distinct ring of a different colour near the base. Native of the regions about the Mediterranean.

A. dichotoma.—Although less showy than some species this is a very desirable plant, of a robust hardy constitution, about 9 to 12 inches high, forming pretty clumps either in the border or on the rockwork. Leaves dark green; flowers upwards of an inch in diameter, white. May. Siberia and Canada.

A. Hepatica.—This plant and its varieties, perhaps better known by the name of *Hepatica triloba*, used to be more largely grown than at present; but I have much satisfaction in finding the public taste coming round again to so many of these useful old-fashioned flowers. The plant grows 4 to 6 inches high. Leaves heart-shaped, smooth, entire, deep green. Flowers freely produced above the leaves. I cannot recommend a more beautiful plant than this one, with its varieties, all of which should be grown either as border plants or on some little upland spot in the rock garden. They delight in a compost of rich strong loam, and do not like to be much disturbed. The following are the principal varieties, amongst which I cannot include the *alba plena*, for although much has been said and written respecting this form I have never found it in any garden:—*A. Hepatica*, pink; *caerulea*, blue; *caerulea fl.-pl.*, double, rich indigo blue; *alba*, white with pink anthers; *nivea*, pure white; *Barlowii*, purplish mauve;



Fig. 77.—*Anemone coronaria*.

rubra, red; *rubra fl.-pl.*, double red; *splendens*, crimson; *lilacina*, pale blue. March and April. Europe and North America.

A. japonica.—No more beautiful border plant for autumn flowering can be grown than the one now under consideration. It accommodates itself to almost any soil, and yields a maximum of pleasure without even the slightest care. It grows from 2 to 3 feet high in good soil. The flowers are large, bright rose colour, with sepals so numerous as to form a semi-double flower. It blooms from July until late in the autumn. Japan.

A. japonica alba.—This variety has somewhat less divided leaves than the type, otherwise its habit of growth and height are

similar. The flowers, however are rather larger and snow white ; stamens golden yellow. It cannot be too highly recommended. July until late in the autumn. Japan.

A. nemorosa.—The beautiful Wood Anemone of our own island, who does not look upon its charming flowers with delight during the early spring days, and hail it as a harbinger of brighter days to come? Its beauties, however, are not confined to our own land, for it is widely distributed throughout Europe. It grows from 6 to 9 inches high, and is a charming plant either for border, rockery, or wild garden, being equally at home in all. The flowers are solitary, on long footstalks, white, sometimes tinged with reddish purple on the outside. In addition to the ordinary form there are now two beautiful double-flowered varieties, which are charming companions to our woodland beauty—viz., *A. nemorosa alba fl.-pl.*, flowers large, very double and pure white, and *A. nemorosa rosea fl.-pl.*, a double rosy-red form, extremely handsome. March and April. Europe (Britain).—H.

PLANTING POTATOES IN THE AUTUMN.

NOT only in the Journal but in the *Times* have letters recently appeared in praise of this obsolete plan. After giving it a fair trial by planting two or three acres in the autumn for a few years—I cannot be more exact than this—my father was obliged to revert to spring planting again because of the lateness of the autumn-planted tubers, the weakly growth from seed partly consumed by slugs, and numerous vacancies where the seed was eaten. This was about thirty years ago, and I have never seen it practised since then. The land was a deep heavy loam. A heavy dressing of half-decayed manure was dug in, and the planting was done by inserting a spade quite 6 inches deep, lifting the soil slightly, and putting the Potato down behind the spade into the manure, which thus served to protect it from frost.

Any notice of the letters bearing upon this subject would have been unnecessary but for the attempt of some writers to claim merit for it upon the score of its affording a heavier crop and immunity from disease. No wonder there is so much uncertainty about the disease and its remedy when such ideas are gravely advanced and actually acted upon. At the present time the whole of my seed is spread out thinly, and all the early varieties are laid singly upon shelves of open latticework. Already are the earliest varieties slowly making growth, each tuber having a stout shoot surmounted by its minute coronet of miniature leaves. Not one of them will be planted till next April, when the sturdy shoot, as thick as one's finger, will already have rootlets, and the tuber with all its vigour intact will send its stem to the surface in a few days, and both haulm and tubers will grow with such rapidity, and come so early to maturity, as to render success a certainty.—EDWARD LUCKHURST.



THE Royal Caledonian Horticultural Society have announced that a GREAT INTERNATIONAL FRUIT AND FLOWER SHOW will be held in Edinburgh in 1882. More than an ordinary amount of interest will attach to some of the classes at least, as the General Horticultural Company (Mr. Wills, manager) offer a prize of thirty guineas for the best six sorts of Grapes, two bunches of each sort, and a second prize of twenty guineas in the same class; also first and second prizes of the same value for collections of twelve sorts of fruit. Thus one hundred guineas are provided in four classes, which ought to stimulate cultivators to produce displays of unusual excellence.

— REFERRING to the prospects of THE CHRYSANTHEMUM SEASON a successful exhibitor informs us that from observation in several districts he expects the exhibitions to be uncommonly fine this year. The number of growers increases annually, and considerable skill is now brought to bear upon the culture, rendering the competition much closer and more exciting. The plants, too, are generally in good condition, the wood stout, foliage vigorous, and buds large and abundant.

— THE Municipal Council of Paris recently forwarded to the Lord Mayor of London, Sir Francis Truscott, AN ENORMOUS BOUQUET in acknowledgment of the courteous reception accorded to the members of the Council on their visit to the City a short time since. This bouquet measured nearly 9 feet in circumference, and was chiefly composed of Rose buds, White Lilac, Gardenias, Bouvardias, the bright blue Cornflowers, a few yellow and white Chrysanthemums, with a large outer circle of Cypripedium insigne backed up with Fern fronds. The arms of the city of Paris and the motto were cleverly delineated on the surface of the bouquet by an arrangement of red Rose buds and Cornflowers, every part being very clearly shown.

— ON the question of keeping BLACK HAMBURGH GRAPES the views of our correspondent "J. H. M." receive confirmation in an excellent article in the *Gardener*, which arrived after our correspondent's notes were in type. "There is," says our contemporary, "no doubt at all about the desirability of lengthening the season of Hamburgs as much as possible; for nine-tenths of those who own vineries for their own private supply, if polled on the subject, would vote for the Hamburg as long as it can be had, and for the other sorts referred to as short a time as possible, consistent with a supply. We have seen good late Black Hamburgs after the middle of February; but say that a month is cut off that, and to have them till the end of January is easily attainable; and we know of no point more desirable than that Hamburgs should be grown with this end in view, and that fewer late varieties should be planted."

— FURTHER experience with GILBERT'S CABBAGE BROCCOLI enables Mr. Muir to say that this is a valuable addition to choice vegetables. The flavour of it is delicious, surpassing that of any Cabbage he has tasted, and equal to that of Broccolis. It comes perfectly true from seed, and hearts freely and firmly under the same culture as any ordinary Cabbage. The Cabbage Broccoli is no doubt an excellent vegetable. Mr. Iggulden has sent us some heads, which when cooked were tender, sweet, and delicate in flavour.

— A CORRESPONDENT writes—"Among neglected plants few are finer than CHRYSANTHEMUM LACUSTRE. It will probably become as popular as Pyrethrum uliginosum has already done. The flowers are similar, but have the advantage of growing on a plant only about 2 feet high, requiring no support. The leaves are broad, strongly serrated, and very distinct from those of the plant with which comparison has just been made. In the Cambridge Botanic Garden it flowers just before that species, lasting several weeks. With liberal treatment it becomes very beautiful."

— A POTATO GROWER writes as follows:—"According to the evidence of Mr. Henry Thompson before the House of Commons Committee, it appears that he professes to have discovered a REMEDY FOR THE POTATO DISEASE. He does not state what it is nor the mode of application, but he is so confident of its efficacy that he is willing to undertake trials in any position north or south of London and with any varieties, and if the crops are injured he will pay for the damage and give his time for nothing. This seems fair, and I think it would be well if the opportunity were afforded him of proving whether the scheme really possesses any merit."

— THE exhibition of CHRYSANTHEMUMS in the INNER TEMPLE GARDENS, which we briefly referred to a week or two since, is now open to the public, and there are sufficient flowers to make a fair display, though they will not be at their best for at least a week. Several Japanese varieties have good representative blooms, those particularly noteworthy being James Salter, Gazelle, Cri Kang, Gloire de Toulouse, and the comparatively new Bouquet Fait, with large blooms, yellowish in

the centre and white outer florets. Among the incurved varieties the only one of unexceptionable merit as regards condition at present is the handsome Prince Alfred, of which there are some remarkably fine blooms. The well-known attractive and useful Gloria Mundi and Aurea Multiflora are also flowering very satisfactorily, and many others are rapidly advancing. We regret to learn that it was recently found some person had wilfully broken a number of the plants, plucking and destroying about five and twenty blooms. It is said that this is the first instance of the Chrysanthemums suffering from wilful injury since the exhibitions have been opened to the public.

— THE CHRYSANTHEMUMS IN THE MIDDLE TEMPLE GARDENS will be opened to the public during the ensuing week, but as they are rather late it will be some time before there are many blooms fully expanded. Eventually they may be expected to prove an attractive display.

— "A SALESMAN" sends the following observations concerning the LIFTING OF UNRIPE POTATOES IN CORNWALL:—"Mr. W. Roberts' note upon this subject on page 395 is liable to be misunderstood by those who are unacquainted with the facts. From what he says it would seem that growers in Cornwall practise early lifting with the object of avoiding loss by disease. This is not the case, however, for they simply take advantage of their favoured position and endeavour to send 'new Potatoes' into the London markets as early in the season as possible, knowing that they then realise the best prices. The majority of Cornish Potatoes are consequently lifted directly they attain a saleable size."

— MESSRS. JAMES CARTER & Co. of High Holborn have sent us a collection of flowers of their "CROWN JEWEL," strain of TUBEROUS BEGONIAS, which appear to be of great excellence. The flowers are large, of good form and substance, the colours being bright and diversified. The tints range from white through various shades of yellow, orange, scarlet, crimson, and pink. One flower of a bright scarlet hue was particularly notable for its symmetry, the petals being finely rounded. A yellow flower was similarly good.

— WE learn that ANTHURIUM ANDREANUM is now in flower at Mr. Bull's establishment at Chelsea, and thus an opportunity is afforded for those who have not seen this remarkable plant to observe its brilliant and singular spathe.

— WE are informed that valuable SILVER CUPS FOR ORCHIDS AND GRAPES will be offered at the Bath and West of England and Southern Counties Association's Show, which opens on June 6th at Tunbridge Wells next year, the horticultural department of which will, as usual, be under the able direction of the Hon. and Rev. J. T. Boseawen.

— THE third part of Messrs. Cassell's re-issue of "PAXTON'S FLOWER GARDEN" contains coloured plates of *Boronia elatior* and *Sarracenia Drummondii*, both fairly well representing the form and habit of the plants, but not quite faithful in the colouring. There is no cultural instruction accompanying the *Sarracenia*, though in the original edition a good system of culture was subjoined to the description of the plants.

— IN addition to the CHRYSANTHEMUM EXHIBITIONS which were noted last week, we learn that the following Societies will hold shows on the accompanying dates:—South London, November 15th to 17th; Ealing and Acton, November 17th; Tunbridge Wells, November 18th and 19th; Longton, November 22nd; Oxfordshire, November 23rd; and Manchester, November 25th.

— THE following results of EXPERIMENTS IN POTATO CULTURE have been sent to us by the Rev. A. Fitch, Thornton Steward—"On March 12th, 1880, I planted a row of Potatoes consisting

of twenty-three varieties, row east and west; each set 15 inches apart, with a clear space of 3 feet on each side. I made a great mistake in planting indiscriminately instead of placing the varieties producing the smallest tops by themselves, consequently the coarser-growing varieties in some instances completely swamped those that were more delicate. This fact will in part account for great discrepancies in the different weights. The following were lifted on August 23rd—The produce of Suttons' Improved Ashleaf was 13 ozs.; Beauty of Hebron, 4 lbs. 3 ozs.; Porter's Excelsior, 3 lbs. 12 ozs.; Yorkshire Hero, 12½ ozs.; Pease's Red, 2 lbs. 6 ozs.; Snowflake, 2 lbs. 4 ozs.; Fox's Seedling, 11½ ozs.; Rivers' Royal Ashleaf, 2 lbs. 2½ ozs.; Lapstone, 1 lb. 14 ozs.; Gloucestershire Kidney, 1 lb.; Compton's Surprise, 2 lbs. 4 ozs.; Myatt's Ashleaf, 2 lbs. 4 ozs.; Rector of Woodstock, 4 lbs. 2 ozs.; Brownell's Beauty, 5 lbs. 11 ozs.; McKinlay's Pride, 5½ ozs.; Reading Abbey, 2 lbs. 12 ozs.; Schoolmaster, 1 lb. 11½ ozs.; Cambridge Kidney, 1 lb. 10 ozs. All were free from disease except one tuber weighing half an ounce of Rector of Woodstock. Lifted on September 21st—Early Oxford, 5 lbs. 14 ozs.; Woodstock Kidney, 3 lbs. 10 ozs. Lifted on October 1st—Suttons' Magnum Bonum, 8 lbs. 4 ozs. Lifted on October 23rd—Flourball, 8 lbs. 8 ozs.; Scotch Champion, 7 lbs. 2 ozs. Five diseased tubers of the latter weighed 1 lb. 4 ozs. All the others were free from disease. The produce of twenty-three sets weighed 5 stones 4 lbs. ½ oz. Two rows of Paterson's Victoria and two rows of Scotch Champions side by side at the Glebe, the former produced 18 bushels, more than half bad; the latter 25 bushels, and not a pailful of diseased tubers."

— THE RECENT HEAVY RAINS.—The rainfall of October was excessive, amounting at Addiscombe, Croydon, to 7·648 inches, or nearly one-fourth of the total amount deposited during the whole of last year. Throughout the twenty-one years over which the Croydon records extend there is no other instance when so much rain fell in any single month, not even excepting the December of 1876.—E. M., Croydon.

THE GLADIOLUS.

THE date of the introduction of the Gladiolus I have had no means of knowing, but seventy years ago we only possessed the following forms:—*G. byzantinus*, purplish crimson; *G. cardinalis*, scarlet and white; *G. communis rubra*, red; *G. communis alba*, white; and *G. floribunda*, white and rose. These were the only forms in cultivation previous to about 1830, when from being a large importer of Dutch bulbs I received a corm of a seedling Gladiolus called *Ramosus*, which was catalogued at 10s. Not knowing much of the Gladiolus I sold it to a nurseryman for 7s. 6d. The year following another came and shared the same fate. Years passed on and *G. gandavensis*, the parent of most we now possess, next made its appearance; its colour was not very bright, and it did not meet with much attention. A few years later Mons. Souchet of France sent me a printed catalogue, which after some time I gave to a friend, and he had the spirit to order a small case, and thus they were introduced into Lancashire. The prices then ranged from 1s. to 6s. per corm. They attracted some little notice, and the following year there was quite a demand for them, which my friend had the greatest difficulty in supplying. Only a few were really attractive; yet I purchased about a score of corms, but not of the best, as the prices deterred me, but the two following years I improved my collection. The autumn was favourable as respects weather, and I had a very large crop of seed. Some of the spikes had no less than twenty-two or more pods.

The year following I sowed the seed, one half in boxes in a cold frame and the other half in a bed, but I could see no difference in the size of the corms when at maturity. The quantity of corms was very large—nearly three thousand, and I had to obtain a plot of ground to grow them in, which ground I trenched 30 inches deep, and applied manure abundantly. I planted my corms in this soil not quite 3 inches deep—some growers recommend 6 inches, but I always found that 3 inches from the crown of the corm was quite sufficient. I was able the second year to exhibit at the Middleton Agricultural Show, and also at the Stockport

Floral and Horticultural Society. They grow best in a richly dunged bed, and fine spikes may be obtained which will gratify the most fastidious florist. I cannot conceive why a flower so brilliant in colours should only be grown by few, and also at a time when flowers are not very plentiful; they require so little trouble and form a great ornament to the shrubbery when planted in clumps of six or eight together, taking great care to blend the colours well. The *Gladiolus* produces seeds freely, and if seed is required it is well to shelter them from the rain and gather the pods as they ripen.

I have omitted the result of my seedlings, as I only took seed from the best of the varieties, and in doing so I discarded all faulty varieties, and the result was I had not many to dispose of, and for those I obtained 15s. per hundred. I had a great number of varieties equal to any raised in France, and not a few of different shades and colours—quite a new style. I find from last year's catalogue that the prices for corms have been greatly reduced, and what I then gave 6s. or 7s. each can be bought for 9d. to 1s. each. The following are a few that I should recommend to be grown in order to raise seedlings:—

Light-coloured.—Bertha Rabourdin, pure white; Madame Binder, white; Marie, pure clear white; Reine Victoria, pure white, broadly feathered with deep carmine; Penelope, creamy white shading to blush; Rebecca, white lightly shaded with lilac, deep carmine.

Scarlet.—Comte de Morny, splendid vermilion; Duc de Malakoff, brilliant orange scarlet with pure white veins; Fulton, rich transparent vermilion red; James Veitch, bright vermilion, striped violet; La Titien, bright vermilion; Meyerbeer, intense brilliant, scarlet of petals flamed vermilion; Sir Joseph Paxton, brilliant orange red, lower petals white.

Rose.—Calendulaceus, pale salmon rose shaded with deeper rose; Diana, delicate blush shaded with rose, lower petals striped bright carmine; Jeanne d'Arc, blush shaded with pale rose, lower petals striped with deep carmine; Lord Raglan, salmon rose, lower petals striped deep vermilion; Madame Furtado, most beautiful, blush flamed with rosy carmine, &c.; Madame Vilmorin, deep rose shading to blush, lower petals striped with carmine; Mazeppa, bright salmon rose; Milton, beautiful blush rose, lower petals striped with crimson; Oracle, brilliant cerise rose with deeper shades; Valleda, delicate rose shaded with carmine.

Gladioli may be grown to advantage in pots; when planted in beds the corms should be 6 inches apart.—JOHN SLATER.

THE POMOLOGICAL MEETING AT HEREFORD.

THE fourth annual Exhibition of the Pomona Committee of the Woolhope Club was held at the Free Library, Hereford, on the 27th and 28th ultimo; and this was by far the most attractive and satisfactory of any of those that preceded it. Four years ago, when the attempt was first made to bring together representatives of the many varieties of Apples and Pears cultivated in the Herefordshire orchards, the object was mainly to ascertain what varieties were best adapted as vintage fruit for the manufacture of cider and perry. The old historical varieties, it was said, had died out, and their places supplied by modern kinds inferior in merit either as pot fruit or for vintage purposes; and the Committee of the Woolhope Club, with the praiseworthy energy which this Society always exhibits, made this a subject for investigation. At the first meeting the number of plates shown did not exceed three hundred, and these included a large number of dessert fruit grown in the gardens of amateurs; still there was a fair representation of the cider and perry fruit—quite enough to show the miserable state the formerly renowned Herefordshire orchards were in through negligent cultivation, and the total absence of any regard to the varieties of fruits best calculated to add to their wealth and reputation. Not much interest was manifested at this first Exhibition, though there were some—and fortunate it is that there are always some who are ready to assist in any good work—whose names will be on record, and who came forward and lent a helping hand in promoting the desirable object. Since then the interest in the subject has spread, and year by year the Exhibition of the Pomona Committee has become one of the annual events of the county, till it has attained a magnitude which bids fair to become too great for the limited accommodation the Free Library affords. On this occasion there were but few short of two thousand dishes of fruit exhibited.

As might have been expected such a work could not long be confined to vintage fruit only, and in each succeeding year we find that dessert and culinary fruit have rapidly increased, while the area of competition has widely extended. Not only do the adjoining counties of Worcester and Gloucester send their contributions, but the distant orchards of Kent and Devonshire have their representatives. Berkshire puts in a creditable appearance, and far distant Normandy stretches out a hand, renewing the ancient connection which gave to Herefordshire so many of her original Apples and a knowledge of orcharding.

At the first two Shows there was no competition, all the specimens being exhibited gratuitously, and out of a laudable desire to assist in

obtaining and diffusing information on the orchard fruits of the county. It was soon found, however, that to maintain an annual exhibition and to obtain still further information on the subject it was necessary to hold out some inducement for growers to send their specimens, and the usual recourse was adopted of publishing a schedule with prizes. This seems to have become an established custom, and this year the schedule extended to thirty-nine classes, with a prize list amounting to £51. The first four classes were for professional growers, and in these the prizes for dessert and culinary Apples were carried off triumphantly by Mr. Lewis Killick, Langley, near Maidstone. In Class 1, for dessert Apples, he exhibited Lady Derby (Summer Thorle), Duchess of Gloucester, Worcester Pearmain, Yellow Ingestre, Old Nonpareil, Warwick Pippin, Cox's Orange Pippin, Duchess of Oldenburg, Court Pendu Plat, Hubbard's Pearmain, Aromatic Russet, Mattot's Pearmain, King of the Pippins, Sharp's Pippin, Ribston Pippin, Sturmer Pippin, Border Pippin, Royal Russet, Dungay, Margil, Golden Russet, Court of Wick, Fearn's Pippin, Mannington's Pearmain, Golden Knoll, Bordeaux Reinette, Wanstall, Scarlet Nonpareil, and Blenheim Orange. The second prize was very creditably taken by Mr. J. Watkins of Wistaston, and the third by Mr. J. Griffiths of Tillington. In the class for culinary Apples Mr. Killick carried off the first prize with Bedfordshire Foundling, Loddington Seedling, Warner's King, Tower of Glammis, Beauty of Kent, Winter Nonsuch, Gooseberry Pippin, French Royal, Cullen, Hanwell Souring, Norfolk Beefing, Woodcock, Queen Charlotte, Winter Quoining, Blenheim Orange, Lord Derby, Hoary Morning, Royal Russet, White Apple, Seely's Apple, Yorkshire Greening, Mère de Ménage, Lucombe Seedling, Wellington (Dumelow's Seedling), Cox's Pomona, New Hawthornden, Golden Noble, King of the Pippins, Lord Suffield, Graham, Golden Spire, French Crab, Northern Greening, and Ecklinville Seedling. The second successful competitor was again Mr. J. Watkins, and the third Mr. John Barnes of Gloucester. In Class 3, for dessert Pears, the first prize went to M. O. Benoit of Havre, France; the second to Mr. H. Moorman, Tivoli Gardens, Cheltenham; and the third to Mr. Barnes of Gloucester. In Class 4, for culinary Pears, Mr. Barnes was first.

The amateur classes were keenly contested, but Sir H. Scudamore Stanhope, Bart., of Holme Lacy, shot far ahead of them all, especially in dessert Pears. In the class for dessert Apples he was first with very fine Ribston Pippin, Blenheim, Newtown Pippin, Pine Apple Russet, Ashmead's Kernel, King of the Pippins, Cox's Orange Pippin, Margil, Golden Harvey, Royal Russet, Court Pendu Plat, and Lamh Abbey Pearmain. Mr. John Pitt of Bosbury was a good second, and Mr. H. Jenkins, Nupton House, Canon Pyon, was third. In Class 6, for culinary Apples, Sir H. Scudamore Stanhope was again first with Gravenstein, Blenheim Pippin, Cellini, Gloria Mundi, Winter Hawthornden, Dumelow's Seedling, Warner's King, Tower of Glammis, Small's Admirable, and Alfriston. Lady Emily Foley of Stoke Edith was second, and Mr. Higgins of Thingehill was third. In class 9, for not less than five dishes of dessert Pears, Sir H. Stanhope was first with a splendid collection of choice assortment and meritorious cultivation. They were Doyenné Gris, Beurré Bachelier, Easter Beurré, Glou Moreau, Doyenné d'Alençon, Doyenné Blanc, Beurré d'Arenberg, Beurré Superfin, Triomphe de Jodoigne, Beurré Diel, Duchesse d'Angoulême, Zéphirin Grégoire, Van Mons Léon Leclerc, Beurré Sterckmans, Columbia, Doyenné Boussoch, Doyenné du Comice, Beurré Clairgeau, Monarch, Duchesse d'Orléans, Marie Louise, Josephine de Malines, Général Todtleben, and Beurré Bosc. J. Booker, Esq., of Wisington Court, Ledbury, was second, and Lady Emily Foley of Stoke Edith was third. Class 10 was for dessert Pears, not less than three varieties, and here Sir H. S. Stanhope was again first with twenty-one varieties, most of which were in the former class, with the exception of Beurré Hetteriek, St. Germain, and Ne Plus Meuris. Mrs. Evans, Moreton Court, Ledbury, was second, and Rev. C. H. Bulmer of Credenhill was third.

From Classes 12 to 29 they were all open either to professional or amateur growers. In the former, which was for dessert Apples for present flavour, Charles Eyre, Esq., of Welford Park, Newbury, Berks, and J. Somers Cocks, Esq., of Great Marlow were equal first, the former with Margil and the latter with Cox's Orange Pippin. Class 13 attracted great interest. It was for a plate of five culinary Apples to be judged for size, weight, and quality. In each case the variety shown was Warner's King, and there was perhaps never better examples shown. The first prize was awarded to H. Higgins, Esq., of Thingehill, whose five fruit weighed 7 lbs. 3 ozs.; the second to Mr. L. Killick, his weighing 5 lbs. 7½ ozs.; and the third went to Mr. Bennett, Sutton Hill, Hereford, the five weighing 4 lbs. 12¾ ozs. Classes 14 to 19 inclusive were for single dishes of specific varieties, but they did not draw forth anything that calls for special notice. Class 20, dessert Pears for present flavour, produced a confirmation of the high merits of Thompson's and Seckle, the former being shown by G. H. Piper, Esq., of Ledbury, who took first prize, and the latter by Charles Eyre, Esq., who was second. Rev. C. H. Bulmer had specimens of Doyenné du Comice of very high character, but unfortunately his plate was one short of the required number and could not compete.

The class for culinary Pears for size, weight, and quality excited, like the culinary Apples, a considerable amount of interest. The variety was Uvedale's St. Germain, and the first prize was awarded to H. B. Strangways, Esq., Shurdington near Cheltenham, the five

fruit weighing 7 lbs. 14 ozs. M. Benoit was second, his weighing 6 lbs. 8 ozs.; and Mr. Barnes of Gloucester was third, his weighing 6 lbs. 7 ozs.

As was natural, the classes including the vintage fruit had a particular attraction for Herefordshire growers. In the class for early varieties of cider Apples Mr. Watkins of Wistaston, Mr. Hill of Eggleton, and Mr. Grove of Tupsley were respectively first, second, and third, and Mr. Davis of Venn's Green, Hereford, had an extra prize. For the late varieties of cider Apples Mr. John Watkins was first, H. Jenkins, Esq., of Canon Pyon second, and Mr. Hill of Eggleton third. For the collection of perry Pears Mr. John Watkins was first, Mr. John Ford, Withington, second, and Mr. W. Hill of Eggleton third. Prizes were offered for cider Apples not grown in Herefordshire, the first being taken by Mr. Randell of Devonshire, and the second by Mr. Barnes of Gloucester. For the perry Pears not grown in Herefordshire the first was taken by Mr. Barnes of Gloucester, the second by H. B. Strangways, Esq., and the third by Mr. Charles Ford, Pitt House, Dymock.

We observed a large quantity of that beautiful Apple the Worcester Pearmain, exhibited by Messrs. R. Smith & Co. of Worcester. These were not for competition, nor was a miscellaneous collection of Apples sent by the Cranston Nursery Company.

With the exception of four classes for cottagers the above formed the substance of this most interesting Exhibition. Among the advantages that are derived from bringing together these collections of fruit, one of the most important is the opportunity it offers for selecting specimens for the "Herefordshire Pomona," upon which the Woolhope Club have concentrated so much energy. All over the room might be seen tickets intimating that the dish has been selected by the Pomona Committee for supplying portraits of fruits to the "Pomona," and it never happens that the request has been denied. Thus it is that this magnificent work is supplied with faithful representations of the fruits which it illustrates.

Two special prizes were offered by Dr. Bull, one for the largest Pear in the Show, which was taken by Uvedale's St. Germain, weighing 1½ lb.; and the other for the largest Apple, which was taken by Gloria Mundi, weighing 1 lb. 11 ozs., and measuring 16 inches in circumference, both exhibited by M. Benoit of Havre, France.

It is but justice to record the untiring application given to this Exhibition by the two Honorary Secretaries, Mr. Reginald Symonds and Mr. Henry Moore, ably assisted as they are by Mr. D. R. Chapman, the Librarian of the Free Library.

DISASTROUS GALE.

FOLLOWING the severe weather of the previous week, 14° below freezing point having been registered at 4 feet from the ground on the morning of October 20th, and 12° below freezing point on the 24th, snow, sleet, and hail falling more or less during the week in fitful showers. The weather set in bad at noon on Wednesday, October 27th, rain falling heavily, intermingled with snow and hail, continuing through the night with the wind north-east and blowing strongly. By nine o'clock on the 28th 2.13 inches of rain were recorded; and by noon, or during the previous twenty-four hours, 2.85 inches of rain had fallen, the wind continuing a hurricane from the north-east, reaching its strongest blast at about 11 A.M., when it drove through plantations of Larch, Scotch Fir, and Pines, laying them as flat as if felled, also doing great damage amongst those of about a dozen years' growth. Large trees of Scotch Fir and Larch were uprooted, tons of soil being upheaved with the roots. Austrian Pines were in some instances snapped off at the ground, those and Scotch Firs having suffered the most. Corsican Pines are also anything but perpendicular, and specimens of Cupressus Lawsoniana about 20 feet in height were blown down. Spruce, especially young trees, have fared better, but many over 100 feet in height are down. The saturated state of the ground no doubt aided in the downfall of the trees, the devastation among trees being very great along the coast of the North Riding of Yorkshire.—G. ABBEY.

GROS MAROC GRAPE.

THIS very imposing Grape, a portion of a bunch of which is represented in fig. 78, was obtained by Mr. Rivers in 1850 from M. Vibert of Angers, a very enthusiastic and skilful viticulturist, who raised and sent out many seedlings, but did not raise the variety in question. A Vine of the Gros Maroc grown in a pot in a forcing house at Sawbridgeworth first attracted attention by its great fertility, and the colour and late-keeping properties of the fruit. As soon as room could be given it was planted out in a vinery, and it has now developed into a very valuable black late-keeping Grape. The berries are large, deep blue black, carrying a very dense bloom, flavour very sprightly and rich. It is rather singular that when grown in a pot the Vine produces bunches at every joint, but when planted out the growth is so vigorous that it will not submit to spur-pruning; Mr. Rivers therefore recommends growing it on the rod or extension system.

Gros Colman was sent to Sawbridgeworth by M. Vibert about 1848 as a present, and being a "gift horse" was not much thought of for many years, but its hidden virtues have at last brought it into notice as one of the largest late Grapes. Gros Maroc has gone through the same career, and its merits are now recognised. Like the Black Hamburg the fruit of the variety in question is not likely to cloy the palate, and it is no worse for being an old



Fig. 78.—Gros Maroc (part of a bunch).

variety. It was first exhibited at one of the meetings of the British Pomological Society—namely, in August, 1857. The fruit was in an unripe state. The variety was then determined to be the Damas Bleu, Gros Damas, Merbregie, or Gros Maroc, which was grown and esteemed in the south of France for its fine appearance and good quality. It is known in Italy as Uva Damascena.

BURNING CLAY.

OF the value of burned clay or charcoal soil there can be no doubt whatever, and the plan recommended at page 380, as having been practised by Mr. David Thomson, was, of course, successful, or that excellent cultivator would not have advised others to follow it. But times have changed since Mr. Thomson was gardener near Barnet, and I question if there are many landlords now who would consent to pay for burning soil 2 feet deep. If anyone contemplates doing such a thing and thus benefiting many future generations, he had better count the cost first, for it is something very considerable; and if the work can be only half done little or no good will result, and it is worth considering whether the desired end cannot be attained by another and less expensive method.

I know a plot of ground on which something of the kind was attempted many years ago. Much labour was spent on it and a great amount of fuel was burned; but as the work was not done

thoroughly all the expenditure was thrown away, and that particular plot is worse in some respects now than others which were not taken in hand. Mind, I admit that the work when well done is almost a perpetual benefit; but what would be the cost per acre, or in other words what would be the cost of excavating, wheeling, burning, and wheeling back again some 3000 cubic yards of clay? And how many years of the extra produce would it take to pay for the outlay? The cost of wood would have to be reckoned now-a-days as well as the labour, for there is very little wasted on a well-managed estate where charcoal has to be made, and where everything worth tying up is made into faggots for sale. I have some 8 acres of heavy soil under the spade, and am well aware that a larger expenditure on it would produce more satisfactory crops of some kinds, and in the course of time the expense of working it would be lessened, but I am certain that were I to do one acre of it this season on Mr. Thomson's plan I should not be allowed to remain to see the result. For all this I have little doubt that I burn as much clay as most gardeners do, and can show a very material improvement effected by it every season.

I maintain that if a subsoil, whatever its nature, cannot be brought into a thoroughly good working condition on account of cost or otherwise, it is better not to disturb it at all, for 12 inches of surface soil will yield more satisfactory crops when only cultivated to that depth than will 24 inches if half of it consists of either clay or sand. Many a piece of fertile ground has been rendered sterile simply by the act of treading; and I have long since come to the conclusion that unless the soil can be made rich and sufficiently porous to admit air constantly to the depth it is cultivated, that deep cultivation is a mistake. Burning the soil to the depth of 2 feet would render the soil permanently pervious to air, but burning it to the depth of 1 foot would not do that; and I imagine that 4 inches of burned clay spread on the surface, and dug in without disturbing the subsoil, would at a less expense be more satisfactory. That is the plan I follow and which, seconded by liming, is gradually bringing about a very great difference in the texture of the soil. When the burning is done on the quarter there is no choice of time for the operation; it must be done when the crops come off, whether other work is pressing or not, and whether the ground is wet or dry.

I practise having a good heap, some 600 or 800 yards, burned outside the garden every winter, to be wheeled on and used where most required all through the season. The management of the fire cannot be better described than it is done at page 380, except that we do not keep it round. It is generally square or oblong after it has been alight two or three weeks, and we enlarge the base on one side at a time as it is required. Managed thus, we find two or three men sufficient to keep it going, except when it occasionally breaks out more fiercely than usual and on Saturdays, when it requires an extra banking-up.

The larger the fire becomes at the base the less is the comparative cost of burning, as it takes less wood, and the clay can be merely wheeled on the top and tipped without much spreading. Stumps of shrubs, roots of rushes, coarse grass and weeds, are a great assistance, as they do not lie so close as the clay, and admit air into it. I had a heap burning six weeks last winter, and there is scarcely a day but some of it is used for some purpose. The stock is now getting short, and I hope soon to be able to start afresh. There is no lack of clay close at hand, indeed we have too much of it.—WM. TAYLOR.

THE POTATO DISEASE AND RAINFALL.

I THINK your Lincolnshire correspondent must be a canny Scot, for instead of answering the queries I suggested to "INTERLOPER" he asks me a question. Some time ago, according to *Punch*, when a Scotchman was asked which was the way to Glasgow, he replied, "I guess ye are frae Lunnun." But these queries must be answered by those who wish the rainfall theory to be considered. Why was it the Potato was cultivated in Great Britain for about two centuries before 1845 and no injury whatever done by excessive rain, but in that year the mischief began, and has continued ever since? This is the little difficulty; it is the *pons asinorum* of the Potato disease subject. No matter how ingenious the theory or how elaborate the argument, unless you can answer this question all is labour in vain. At the same time I will for the present pass that over, and go to the other side of the question, and look at "LINCOLNSHIRE POTATO GROWER'S" query. I do not know really that I need say much or take much trouble to answer his query, for anyone who reads carefully the first part of his letter, and then the conclusion, will see that he answers himself in the last few lines. He brings forward this wonderful fact about the disease being so bad in wet years, and comparatively none (he

does not mean this literally) in others, as though I had ever said the contrary, when such is certainly not the case. The disease is undoubtedly worse as a rule in Gloucestershire as well as other counties in wet seasons than in dry, but that is a very different thing from the rain being the cause or origin of the disease. When children go to school suffering from scarlet fever, other children are liable to take it; in fact the spread of the disease is so much promoted by schools that the sanitary inspectors very often close them. Would "LINCOLNSHIRE POTATO GROWER" say that schools were the cause of scarlet fever? I do not suppose he would. Then, again, with regard to rain alone being the cause of the disease, your correspondent is in error in saying that wet seasons are invariably the worst. The year 1879, which was the wettest of this century, will long be remembered for its disastrous effects on the Potato crop as well as other crops, but the next wettest in the century—viz., 1860, which very closely resembled 1879, was a remarkable exception, for there was not much disease. How does "LINCOLNSHIRE POTATO GROWER" propose to account for this exception? Perhaps he will say that he never intended to infer that rain alone was the cause of the disease; if that is so I fail to see the point of his argument or his object in writing the letter. Perhaps I may reply to "INTERLOPER'S" queries next week.—AMATEUR, Cirencester.

KEEPING GRAPES.

THE remarks on the above subject by Mr. William Taylor were, I think, fitly placed as a leader in your Journal. I do not know that I should have troubled you with my remarks, but that twice within the last fortnight I have been spoken to personally on this matter. I fully agree with what your correspondent says except this—I always prefer to water my Vines on a fine day, early in the morning if possible, so that before night the surface soil may be moderately dry. I believe that Grapes are not prevented keeping well so much by a house being wet when they are hanging as by their not being well ripened. To keep Grapes late they must be well ripened by the middle or the end of September. Then, again, they must be well coloured to keep: bad-coloured Grapes are always the first to damp. My rule in keeping Grapes is to water the borders during the fine days of October, so that in the dull damp days of November the house may be kept dry, but not so dry as to injure the roots. I know from my own observations that nothing renders the buds plump better than a judicious liberal supply of water in the winter, even when the Vines are supposed to be at rest. In watering, where Grapes are hanging, particular attention is required in ventilating, and it is always well to keep the ventilators open a little at the top of the house; thus the heat in pipes will ensure the damp rising. In sunny weather ventilate freely. No greater mistake can be made than in supposing Grapes can be kept without fire heat, even though they may be grown in a fine season without it. I have grown Alicante weighing 2 lbs. the bunch this year without fire heat, but the Vines were planted this March, so I only had two bunches to a Vine. I started the fire to ripen the canes.

My plan with late Grapes is to start the Vines the first week in March, so as to have them really in advance of the season, for it is no use depending on fine autumns for ripening purposes. No amount of fire heat now will colour Grapes. In my earlier days it was a matter of surprise to me to see late Grapes as a rule do so well, but I believe the great secret to be in the fact of having heat in the house in the autumn; this, while keeping the fruit, at the same time ripens and hardens the wood. In all the houses here I planted the Vines in front of the pipes, believing this to be beneficial. I will here say I am no advocate for filling late vineries with plants; in any case no plant should be directly under the Grapes. In lean-to late houses I have kept Strawberry plants on a back border through the winter, and these I always keep well watered. In span houses a considerable number of plants may be kept on either side of the walk without encroaching. The bunches must be well thinned, and as soon as the Grapes are well finished gradually remove small laterals so as to admit air and light. Then with regard to cutting fruit, I am always content to clear out by the end of January, though I have by way of experiment kept Grapes until the first week of March before cutting, but nothing is gained by so doing. I may also say that had I a fruit room I should certainly prefer a dry floor. I do not know that this is really necessary, but I incline to a dry floor. I do not intend naming the best varieties here, but I have kept a whole house of Black Hamburgh for Christmas, and would do so again rather than put them in the market when the price is low. The Gros Colman is a Grape that is now exciting much attention, and justly so; but I fear many will fail with it, for it requires plenty of heat, well thinning, and

extra attention.—STEPHEN CASTLE, *The Vineyard, West Lynn, Norfolk.*

CHAPTERS ON INSECTS FOR GARDENERS.—No. 14. NEW SERIES.

THAT the name of Rove beetles should be distinctive of one group amongst the Coleoptera may appear odd, for the majority of beetles, even amongst those that are fond of darkness and secret retreats, display a propensity for roving in their perfect state. This appellation, however, particularly suits several of the species in the family now to be noticed, because they often attract observation from their habit of moving rapidly across beaten paths and open places with a very determined air, evidently either in the act of hunting for prey, or on the road to a spot where they expect to obtain it. These are prominent species in the division of Brachelytra, which embraces some large species and some that are quite diminutive. Beetles that have short wing-cases is the meaning of the scientific name, and it points to a marked peculiarity in this, the last division of the group of Rhypophaga, or Filth-consumers; though there are occasional examples of a similar habit in beetles that are classed otherwise, owing to their structure. The Devil's Coach-horse is an inelegant and not very appropriate name applied to more than one sombre-looking species belonging to this group, but probably it is most frequently given to the common Rove beetle that is properly named *Ocypus* or *Staphylinus olens*. One naturalist, indeed, asserts that this phrase is appropriate, and says that he made a magnified drawing of this beetle with head erect and sparks of light coming from its eyes, which his friends generally took for a fancy sketch of an imp. But then the epithet implies that the creature is a representative of one of his Satanic Majesty's steeds. Certainly it is black enough in hue, yet other beetles resemble it in this respect, and some can run much faster than it can. So that, as I presume, the epithet was suggested by the supposed viciousness of the insect, shown by its threatening attitudes, coupled with its mode of locomotion, for many crawling beetles that take flight if touched, or feign death. Not so *Ocypus olens*. The insect is doubly armed, in front and rear; therefore when attacked it raises the head with its sharp mandibles, and also lifts the tail, at the end of which are two glands, from which it can eject a liquid of extremely unpleasant odour. Cocktails is yet another name for *O. olens* and his brethren, originated by this peculiar movement of the tail—an action not always pugnacious, since some of these beetles use it with great dexterity to fold up the wings under the short wing-cases, should they have flown along, as they are capable of doing, though not fond of thus taking the air. But this particular species is one of the useful insects, despite its evil aspect (though after all there is some beauty in the polished black head and grey downy wing-cases), for it kills many other insects that are feeders on vegetables, and also looks out specially for earthworms. These the beetle chases even into their burrows; but it has been observed that when an earthworm, as it often will, drags a portion of a leaf within the mouth of its hole, a Rove beetle, for some reason or other, does not enter in pursuit. In the larval state *O. olens* is equally predaceous, and resembles the mature beetle somewhat, in size less of course, and lacking wings; it is occasionally found in combat with one of its own kind.

The history of this Cocktail, a familiar species, has been dwelt upon as a sample of that of others allied to it, in varying degrees destructive to injurious insects of the garden both as beetles and as larvæ. In one or two species the larvæ dig tunnels formed after the manner of the tiger beetles, into which they drag unwary wanderers, seizing them by the head and sucking their juices. Some of the lesser beetles amongst the Brachelytra reside in the nests of ants, at least occasionally; and it is thought that the ants carry them into their abodes and keep them prisoners in order to feast upon a liquid exuded by the beetles—doing with them, in fact, just as with the aphides. It does not appear that the ants kill their prisoners, even if they have become of no use to them. The species of *Claviger* are supposed to live entirely in ants' nests, and they are eyeless, so their structure is adapted to their circumstances, whatever food they require being obtainable in their singular abode, if it is not actually supplied to them by the ants.

The division of beetles we now proceed to has within it numerous large and conspicuous species, the dung beetles and the chafers are examples; and the majority of the insects are vegetarians, attacking very frequently the growth of our gardens and fields. These, the Lamellicornes, while they have, like all the divisions that have been noticed, tarsi that are five-jointed, are distinguished

by the termination of the antennæ, which is in the form of a club. This club is either toothed, or else jointed and composed of tiny leaflike blades. Largest of our British beetles, and at the head of this division, we place the stag beetle (*Lucanus Cervus*), an insect which from its bulk and usual habits has become well known to many who are not naturalists. The male insect flies in or near parks and shrubberies, or exposes itself to view by promenading upon the top of a paling, where persons see it, but are disinclined to handle it on account of the formidable horns. These, possessed only by the male insect, are really the enlarged mandibles, but weakened, for although the beetle can nip with them, their pressure is scarcely felt. The female, less seldom seen, and not popularly recognised as the better-half of the monarch of our beetles, has, however, a biting apparatus much more effective employed to introduce her eggs deep into the solid wood of trees. In size she is rather less, and it is she that should be sought particularly whenever the ravages of the larva render it necessary to put a check upon the increase of the species. Some folks that suggested that it was this larva, and not that of the goat moth, which was called the "Cossus" by the ancients, a worm or grub found within trees, and cooked up as a delicacy. I would only say that if the Romans could eat with relish either of these larvæ they must have had singular appetites. As the larva of the stag beetle grows slowly—its life lasting two or three years, possibly



Fig. 79.—*Ocypus* (*Staphylinus*) *olens*.

longer—it consumes much wood, boring extensive tunnels in the heart of Willows and Oaks chiefly. The head has a curious aspect, having a horny transparent ridge in front, through which can be discerned the working of a pair of powerful jaws.

That common beetle called the "Dor," or the "Watchman," with occasionally an adjective preceding, having emphatic reference to the parasites, properly *Acari*, which adhere so firmly to his under surface, is rather useful than injurious to us. His name of *Geotrupes stercorarius* announces that he occupies himself in labours on or beneath the earth, amidst dung, too, yet his shining coat of mail is seldom soiled unless by an accidental downfall. For when he is upon the wing (and this is not only at night, but sometimes during the day), he has seemingly not much skill in guiding himself, and so comes often to the ground by striking incautiously against some object in his line of movement. The sonorous hum made by this and other dung beetles may perhaps serve to protect them from the attacks of birds. As we have repeatedly seen individuals of *G. stercorarius* about in all the warmer months of the year from April to October, there must be either an emergence in succession of the beetles, or their life exceeds that which usually belongs to the imago state of these insects. The larvæ doubtless live for many months in the peculiar nutriment that shelters and feeds them. It is only necessary to take up one of the dung beetles, small or large, and placing it in the palm, then close the hand a moment, to be convinced about the muscular strength that resides in the thorax and legs. Small

heaps of manure scattered over the ground offer great attractions to the genus *Geotrupes*, and the beetles by burying portions of this, which the larvæ subsequently divide, assist, we would think, in the fertilisation of the soil. Was it for this reason that the Egyptians worshipped the antique *Scarabæus*, a near relative to these?

BRISBANE BOTANIC GARDENS, QUEENSLAND.

THE drought of 1877-8 was succeeded by twelve months during which the rainfall was about 9 inches above the average of the preceding twenty years, and there were several storms, two of which were of great force and caused much injury. Rain fell on 148 days, to the amount of 60·28 inches. The last season was also more than usually wet, but there were no destructive storms. During the past twelve months 58·45 inches of rain fell on 146 days.

The borders along the line of walks and the plots facing the aquaria were planted with *Agave*, *Yucca*, *Bromelia*, *Sansevieria*, and also *Allamanda*. Many of these shrubs which had grown too large for their station have been removed to more favourable situations, and in the summer and autumn months the many coloured varieties of *Amaranthus*, *Coleus*, &c., were planted in the vacant places, which added to the general effective appearance. Upon the same slopes are the Tea, Coffee, Cinnamon, and Cotton plants; the compartment containing the *Macrozamia*, *Cycas*, *Bowenia*, *Stangeria*, *Catakidzamia*, and *Encephalartos*. The beds and clumps are filled with *Cocos*, *Sabal*, *Oreodoxa*, *Latania*, *Pandanus*, &c., and to the north of the Tea plantation is the collection of Palms much noticed by writers who have visited us from the southern colonies and other countries. To these latter have been added *Calyptronoma Swartzii* (the Long-thatch Palm of Jamaica), *Sagus amicarum* (the Vegetable Ivory Nut of the Solomon Islands), *Brahea dulcis* (the Sugar Palm of Mexico). They are all thriving exceedingly well. The plots, borders, &c., have lately been dug over, and have received a good supply of manure.

The rosery has undergone a thoroughly deep digging and dressing with a strong loamy soil from the site where the new building for the Port Master's Department is being erected. Forty-eight new varieties of Roses have been added to the collection, principally of the Tea and Noisette sorts, which I find are best suited to this climate. From present appearances they promise a good supply of flowers.

The following interesting plants have flowered and fruited during the past season:—*Spathodea campanulata*, *Chrysophyllum imperiale*, *Toxicophlæa spectabilis*, *Poinciana regia* var. *lutea*, *Ptycosperma Hilli*, *Kentia minor*, *Quercus suber*, *Vanda Batemani*, *Saccolabium Hendersoni*, *Saccolabium giganteum*, *Dendrobium Bensoni*, *Dendrobium Falconeri*, *Phalaenopsis grandiflora* var. *lutea*, *Cypripedium Stonei*, *Cypripedium Parishii*, and *Grevillea Palmeri*.

Amongst the fruit-bearing trees the most interesting is the Black Peach introduced from Japan in 1878. The fruit is about the size of a duck's egg, the flesh of a dark reddish colour, juicy and of good flavour, and free from all disease. Grafts or buds of this valuable tree can be had on application.

Several well-managed nurseries are now to be found in Brisbane and elsewhere in Queensland. The time appears to have arrived when it would no longer be fair to the enterprising proprietors of those establishments for an institution supported by the public revenue to distribute gratuitously seeds and plants that can be purchased at a reasonable cost within the colony. This does not refer, of course, to useful imported plants that are not to be bought here, or to others which the Government may consider advisable to be given away in order to aid in the establishment of new industries.

The International Exhibitions of Philadelphia and Paris received large and valuable collections of timbers, fibres, cereals, arrowroot, sugars, essential oils, specimens of indigenous grasses, none of which were returned here, and nothing whatever received in the way of exchange. Whatever advantages may have otherwise been derived, this establishment has not reaped any of the benefit that was anticipated. Our whole resources were strained, and the routine work very much interfered with, and not as much as a single specimen for the herbarium or museum was got in return. Of the collection since contributed to the Sydney International Exhibition, many things were either retained there or sent back in a useless condition. There were 234 economic plants forwarded, one-half of which, and several manufactured products, were applied for and given to the Director of the Sydney Botanic Garden, upon the condition that he would send back an equivalent collection in exchange. Not only has he failed to do so without affording any explanation, but has also "taken charge," as I am informed, of the other half of the economic plants and of several exhibits belonging to this establishment which it was very important should be returned. A list of these has been forwarded to the Department of Public Lands. Under these circumstances I have had to begin getting together a fresh general collection for the approaching Melbourne Exhibition. It was my intention to have made it a display of the vegetable resources of Queensland on a larger scale than ever yet been seen, but the result must now be expected to fall short of my original idea. I mention the above facts in order that an allowance may be made for the difficulties with which I have had to contend.—(Extracts from Report by the Director, Walter Hill.)

POTATOES.—I desire to thank Mr. W. Roberts for his kindness in ascertaining for me the origin of the Ashleaf Kidney Potato.

It was no idle curiosity that induced me to ask you to insert my queries in your valuable Journal, but I am endeavouring to obtain a few facts bearing upon Potato culture for a special purpose; hence I am anxious to know from good authority when Rivers' Royal Ashleaf, Lapstone, and Fox's Seedling were first raised. The last-named I have cultivated for years, and think it by far the best early Potato.—A. FITCH.



KITCHEN GARDEN.

Peas.—A first sowing of Peas may now be made upon a south border, sowing them in drills about 3 feet apart, the seeds being damped and well coated with red lead before sowing them to prevent the attacks of mice. Cover the seeds lightly with soil, and then with sifted ashes about an inch deep, bringing them out to the extent of about 6 inches on the sides of the row. William I. and First and Best are most suitable for this sowing. For growing at the foot of walls Blue Peter, Little Gem, and Premium Gem are suitable varieties. Light warm soils are most suitable for early Peas. If Broad Beans are required very early and a warm border is available, a sowing may be made of Beck's Gem or Early Mazagan in rows about 2 feet apart, treating them in other respects the same as the Peas.

Late-sown Turnips should now be looked over, and those fit for use taken up and stored in damp sand in the root house; this will benefit the remainder of the crop, which may stand for later use. Remove the haulm of Asparagus, and after clearing the plantation of weeds give a good dressing of thoroughly decomposed manure 2 or 3 inches thick, and cover it with a little earth from the spaces between the rows or beds. Remove the decayed leaves from Seakale, and take up any roots that are to be forced inside, and lay them in in a sheltered position so as to be readily obtained when required. That intended to be forced or blanched outdoors should be covered with ashes or cocoa-nut fibre refuse as a protection for the crowns. Globe Artichokes may be cleared of the exhausted stems and decayed leaves, the soil taken out around the crowns 3 or 4 inches deep, a sprinkling of quicklime being given, which will speedily destroy slugs, and the spaces made by the removal of the soil filled with sifted ashes. This is a good protection from slugs and frost.

Forcing Department.—A succession of French Beans should be sown, keeping those previously sown as near to the glass as practicable; earth-up as required, and supply weak liquid manure after the flowers appear, affording a temperature of 60° to 65° at night and 70° to 75° by day; 5° less all round may be allowed when external conditions are unfavourable. A few roots of Rhubarb of some early variety—Johnson's St. Martin's is the best—should be placed in the Mushroom house or other position, with a temperature artificially of 55° to 60°. Seakale may also be planted in rich light soil, and the soil being moist no water need be given until the crowns are moving, then supplying weak liquid manure as necessary. To secure the blanching of the Seakale means must be employed to exclude light. Dung and leaves, two parts of the latter to one of the former, being prepared by throwing them into a heap, turned over once or twice, and damped if necessary. A first bed of Asparagus may be planted, but unless the demand is urgent and continuous and the means adequate little advantage is gained by starting very early. Preparation should, however, be made of the fermenting materials for making up a bed at the end of the month, so as to secure a supply of this most esteemed of forced vegetables by Christmas. Where Potatoes are required early sets of medium size should be placed in boxes and covered with about 2 inches of old tan or leaf soil in a house with gentle heat where the sets will soon have made growth about 4 inches long, when they can be planted in frames or pits with beds of prepared fermenting materials under 6 inches of light rich soil. The Potatoes should be planted, when the soil is warmed, 1 foot asunder in rows 15 inches apart, placing the sets about 4 inches deep. The most suitable varieties for forcing are Early Bird and Veitch's Ashleaf.

Admit air freely to Radishes in frames, and make up another bed, and sow as soon as the heat is up and has warmed the soil, keeping off the lights whenever the temperature is above 35°, with a view to prevent drawing whilst the plants have only their first or seed leaves, but when the rough leaves appear the frame may be kept close to advance the growth.

FRUIT HOUSES.

Vines.—Where it is necessary to have new ripe Grapes in April starting the Vines must not be any longer delayed. If in pots, a good supply of fermenting materials for affording heat to the roots should be provided of a description that will afford a mild lasting heat, such as that obtained by an admixture of two parts of Oak or Beech leaves to one of stable dung. The heat around the pots must not be allowed to exceed 75°, the supply of water being moderate in the early stages. Bottom heat is not essential, but it will hasten them considerably, and if the roots be allowed the run of the fermenting materials the swelling of the fruit is enhanced. Permanent Vines are, however, by many, and rightly, preferred, as they afford finer Grapes with less labour. In that case the early Vines to afford Grapes at the time stated should now be started, the inside border receiving a thorough soaking with liquid manure at a temperature of 90°; making up a bed in the house about 2 feet thick of two parts leaves and one part stable dung, occasionally turning the whole or a part of it over. The moist ammonia-charged heat will greatly facilitate the starting, and be more beneficial to the Vines than fire heat alone. Syringe in bright weather three times a day, damping available surfaces morning and afternoon in dull weather, maintaining a night temperature of 50° to 55°, and 60° to 65° by day, continuing these until the buds burst, then advance 5° all round. The outside border must have regular attention as to coverings from heavy cold rains. Do not delay, as is often done, the pruning of the Vines in succession houses for a considerable time after the leaves have fallen, but push on the pruning and cleansing of the houses and Vines as fast as possible, so as to induce early and complete rest. Remove all leaves from Vines going to rest, and keep the house cool, dry, and airy, also removing the dead and decayed foliage from Vines with ripe Grapes, as they engender moisture, which injuriously affects the keeping of the crop. Late-planted Vines not yet brown and hard in the wood should have fire heat still applied with free ventilation, so as to thoroughly ripen them. Examine ripe Grapes frequently for decayed berries, maintaining a dry cool atmosphere, and protecting outside borders with dry litter or fern with shutters or tarpaulin. Late Grapes should not be cut for bottling until the close of the year or early in the coming year.

ORCHARD HOUSE.

Those who have not potted or top-dressed the trees whilst they were in leaf, and object to placing them outdoors after the leaves have fallen or the wood is ripened, should lose no time in attending to those operations, which we consider preferably performed at an earlier stage. Trees planted out must be examined, and where necessary be carefully lifted, root-pruned, and immediately replanted, removing a portion of the old effete soil, and employing a like portion of fresh turfy loam, firming the soil well about the roots and giving a good watering after replanting, and when the soil has become moderately dry again firm it well and mulch with half-decayed manure about 2 inches thick. Trees in pots not requiring shifting into larger pots should have the soil scooped out at the sides to as great a depth as possible, filling in with fresh compost—turfy loam of a heavy nature, adding about a fourth of well-decayed manure and about 15 per cent. of bone meal, which being in proper condition, neither too wet nor too dry, should be rammed down as firmly as possible, the trees then being given a good watering. Young trees in comparatively small pots may now be shifted into larger pots, which must be well drained, and the sides of the balls being loosened the fresh compost should be rammed as firmly around the balls as possible. Pruning may be done now; but if summer pruning has been properly attended to, and thinning out exhausted growths after fruiting, there will be little necessity for it at this time of year. The only pruning further required will be the thinning of the crowded spurs and shoots in spring, especially those too weakly for the production of fine fruits. To prevent insect attacks dress the trees with

an insecticide, such as a solution of nicotine soap, at the rate of 6 ozs. to the gallon of rain water, applied at a temperature of 90°, which destroys every kind of insect. The trees may be placed close together and covered with some dry litter or fern as a protection for the roots during frost. At all times, except during the prevalence of frost, the ventilators must be left open, the object being to secure a complete rest to the trees, which is best done outside, as by keeping them close and comparatively warm the buds will be excited and cause much trouble to retard the bloom in spring.

STRAWBERRIES IN POTS.

Those plants intended for early forcing must be conveyed under cover as soon as possible. They may be plunged in ashes to the rim of the pots in cold pits or frames, and the lights only employed to throw off heavy rains and to afford protection in severe weather. The plants will not perhaps require any water; but on no account must they be permitted to lack moisture at the roots, or they will lose the young white rootlets so essential to the well-being of the plants in the early stages of forcing. The general stock will do very well plunged in ashes in a sheltered situation, and if a little dry litter or fern be placed over them in severe weather nothing more in the shape of protection is necessary. It must, however, be removed in mild weather, or when there is no frost, for Strawberries like plenty of air and a moist soil.

FLOWER GARDEN.

The frosts and stormy weather have settled matters in a decided manner with the summer and, indeed, autumn-flowering plants of the flower garden. A general clearance will have been, or must be at once effected; and whether it be intended to fill the beds and borders with dwarf evergreens and Conifers of a hardy character, or with other plants for spring flowering, no time should be lost in planting to enable them to obtain hold of the soil before severe weather commences. The plants employed for spring gardening have much to recommend them, as they are hardy and not expensive; indeed a moderate expenditure in bulbs, such as Hyacinths, Narcissuses, Tulips, Crocuses, Anemones, &c., and a few packets of seeds of Nemophilas, Silenes, Limnanthes, Myosotises, and other hardy annuals, with Hepaticas, Snowdrops, Winter Aconites, Primroses, Polyanthes Auriculas, double Daisies, Violas, Pansies, and Wallflowers, afford a good and cheap display to enliven what would otherwise be cheerless beds and borders. Before digging the beds preparatory to planting the above it may be necessary to give a good dressing of manure, and after planting a mulching of cocoa-nut fibre refuse over the bulbs and about the plants 2 inches thick will improve the appearance.

Such weeds as Plantain, Daisies, and Buttercups on lawns should be removed as opportunity offers in mild weather during the winter. The removal of these will encourage the growth of the grasses and do much towards securing a rich velvety lawn. The heavy rains have brought worms to the surface, disfiguring the lawn. Give them a dose of lime water, which soon brings them out, and they may be swept up and destroyed. A few applications of this will save much time in sweeping and rolling. Any inequalities in the lawn surface should now be rectified by raising the turf, filling in the low parts before relaying the turf, whilst those too high should have soil taken out and the turf lowered, beating it well down.

Herbaceous borders have a wintry aspect—little in flower, many plants that are usually fine at this season being cut by frost. The tops of any varieties that are sufficiently ripened should be cut off, and the surface of the soil made neat and clean by stirring. Remove the soil from about the crowns of Pyrethrums, and Delphiniums which are liable to have the crown buds eaten by slugs, and after dusting with quicklime fill in with sifted ashes. Take up Dahlia roots, and after laying a few days to dry in a shed store away in sand in a place safe from frost. Take up and pot choice Hollyhocks, and winter them in a cold frame.

PLANT HOUSES.

Orchids.—Lowering the temperature gradually will have induced partial rest of the Orchids in the East India house, but moisture must nevertheless be attended to as soon as the temperature commences rising in the morning, or by 9 o'clock. Water will need to be sprinkled or poured over the paths, and to any plants requiring it water should

be supplied sufficiently to keep the moss damp. The watering and syringing must be done by twelve o'clock, which will allow of the house becoming dry by the time the temperature lowers, which is of importance, as a cold wet atmosphere is inimical to the health of the plants; ventilation will only be necessary on fine days to prevent the temperature rising too high. Any plants of *Dendrobium nobile* that have completed their growth and are swelling their buds may be placed in the East India house and damped overhead on fine days, and they will be in flower by the new year. Cattleyas and *Dendrobiums* should receive very little water at their roots, and any blocks or newly imported roots will need damping occasionally. Let all plants coming into flower be thoroughly exposed to the light, or they are liable to lose the buds at this season. Plants of *Laelia purpurata* which have not completed the growth should be kept in the warmest part of the house. *Calanthe vestita* and *C. Veitchi* coming into flower should have very little water and the atmospheric moisture not excessive, or they will cast the buds and the flowers be spotted, therefore keep the plants fully exposed in the driest part of the house. *Lycaste Skinneri*, though a water-loving plant, requires less at this season, but the roots must not be allowed to become too dry or the pseudo-bulbs speedily shrivel. The water should be kept from the base of the pseudo-bulbs, or the flower buds will decay when about an inch long. *Cypripediums* must be well supplied with water, they not requiring any rest. Many of the *Odontoglossums* and *Masdevallias* will still be growing freely, and must be kept moist at the roots; and although these plants require plenty of water, care should be taken at this dull season not to have a saturated atmosphere.

TRADE CATALOGUES RECEIVED.

Brunant, Boulevard Saint Cyprian, Poitiers (Vienne-France).—*List of New Begonias*.
Edward Phillip Dixon, Hull.—*Catalogue of Roses, Trees, and Shrubs*.
John Carter, Keighley, Yorkshire.—*Catalogue of Nursery Stock*.



* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Address (*Robert Thorburn*).—The address you require is Mr. J. G. Wagstaff, Albert Ironworks, Dukinfield, Ashton-under-Lyne.

Dividing *Pyrethrums* (*G. O. S.*).—Spring is the best time for dividing these plants, just as they are commencing fresh growth. It is advisable to remove some of the soil from around the plants now and place some ashes round them, which will enable the water to pass away freely and destroy the harbour for slugs.

Magnum Bonum Potatoes (*J. Renshaw*).—Your crop was good, but the records of greater productiveness have been sent to us. The good cropping qualities of this variety are so fully and generally admitted that it is not necessary to publish the weights of crops of little more than the ordinary character.

Bedding *Pelargoniums* in Hyde Park (*Harebell*).—The following are amongst the most effective varieties employed in this Park:—Miss M. Holden, scarlet; John Gibbons, scarlet; Letty Carr, crimson; Sir H. Stanhope, dark scarlet; Col. Wright, salmon scarlet; Wordsworth, bright scarlet; Lucy, pink. Mrs. Turner, bright pink; Rose of Allaudale, a bright shade of pink; and Theocritus, rich scarlet. At the Crystal Palace Lady Constance Grosvenor is largely employed as a scarlet, as also is Vesuvius, Cleopatra being the leading pink variety planted there. Silver variegated—Albion's Cliffs, Miss Kingsbury, Princess Alexandra. Yellow-foliaged Varieties—Robert Fish and Crystal Palace Gem.

Zonal *Pelargoniums* for Pots (*Idem*).—Mrs. Windsor, bluish white; Joyful, pale magenta; Mrs. Davidson, deep rose; Samuel Plimsoil, purplish crimson; Henry Jacoby, dark crimson; President Gambetta, reddish salmon; Rebecca, rose crimson; Clemence Boutard, bluish; Louis, magenta; Charles Schwind, crimson; T. Schuler, bright scarlet; and Fanny Cattlin, rosy salmon. These are all single varieties, which we presume you require, and with good cultivation produce very large trusses. The address you require is T. W. Cowan, Esq., Horsham, Sussex.

Guernsey and Belladonna Lilies (*J. P.*).—You no doubt potted the bulbs too deeply and watered them too freely. In all probability several of them, if not all, are dead, at least all that do not emit roots are worthless. Those that produce roots may eventually be planted out in a warm position. They will not be suitable for forcing next year, and do not like being disturbed too frequently. If you send 3½d. in post stamps to the publisher and ask him to send you No. 752 of the Journal, you will find some cultural notes on these plants.

Tea Roses for Forcing (*Idem*).—Your plants would have been better placed under glass before they made their second growth. Without knowing their condition more precisely it is not easy to advise you; but probably if you prune them just below the base of the second growths and train the firm portions of the shoots round stakes, they will eventually produce flowers freely under careful management. They must have abundance of light and not too much heat at the first; a temperature of 45° to 50° will be sufficient until they are growing freely, and they should not be started before January if you want good blooms.

Rabbits v. Fruit Trees (*P. G.*).—The most effectual plan of preventing injury to the trees is to encircle the stems loosely with closely made galvanised wire. Less permanent modes of preserving the bark is to tie old bark from other trees round the stems, or briars may be employed. Stout brown paper secured round the trees and thickly smeared with tar lasts for a considerable time. A mixture of sulphur, lime, and cowdung thickly smeared on the stems only lasts for a short time; to be effectual such dressings must be applied twice during the winter. If you secure anything of a permanent character round the trees you must examine the ligatures frequently and loosen them when necessary. Plant the exposed side of your orchards with the Dumelow's Seedling Apple; it is hardy and of rather close growth.

Climbers for Exposed Situation (*Alex. F. Roberts*).—We have seen the following plants upon the south front of a house 540 feet above sea level, exposed to the force of the south-west wind coming over at least 30 miles direct line of moor—*Clematis Vitalba* or Traveller's Joy, *Caprifolium Perilymenum* (Houey'suckle), *Jasminum officinale* (Sweet White Jasmine), and Ayrshire Roses—viz., Dundee Rambler, Splendens, and Ruga; those would probably succeed with you. Most varieties of Roses, Clematises, and other climbers or wall plants were tried in the same position and failed.

Substitute for Pampas Grass (*Idem*).—*Erianthus Ravennae* would probably succeed where Pampas Grass has failed; but though a fine grass, is not nearly so effective as Pampas Grass, which might thrive if you afford it protection in winter.

Adiantum farleyense Unhealthy (*Constant Subscriber, Liverpool*).—Assuming that the temperature of the house is suitable for the Fern we consider the soil in which your plant is potted in is unsuitable. We should remove all the decaying fronds now, and when fresh growth commences in the spring remove a good portion of the soil and repot the plant in fresh compost, and in a smaller pot if possible. Turfy loam and peat with a liberal admixture of charcoal will induce healthy root-action; the plant should then be shifted, employing a richer compost. The finest plants we have ever seen were growing in a compost of two-thirds of strong loam that had been previously submitted to the action of fire, and one-third part of the remains of an old Mushroom bed, with charcoal and wood ashes to keep the soil porous and sweet.

Potatoes (*E. Yorke*).—It is about as impossible to determine the varieties of some Potatoes by merely seeing the tubers as it is to determine the names of certain Peas by inspecting the seeds. The tubers you have sent are very small, you do not even say whether the variety is an early one or not. We will have them planted, and possibly we may be able to recognise the variety after seeing its growth and comparing it with others.

Lichens on Trees (*X. F. Z.*).—The land probably requires draining, and even this is not effectual in some districts for destroying lichens on trees. When the branches are quite wet and there is little or no wind, as during a fog or just afterwards, freshly slaked lime should be thrown plentifully through the trees, and it will adhere firmly, leaving them quite white. This will destroy the lichens, and the lime that falls to the ground will be beneficial. We have cleansed many trees by this process, but success depends on the manner in which the work is done. The lime must be used liberally, and where the trees are large the operator must have the use of a ladder. Young trees can be dressed with lime in the form of thick whitewash applied with a soft brush.

Fruit Trees not Bearing (*H. T. H.*).—We can scarcely understand the condition of your pyramid trees which are growing "most luxuriantly," yet "bristling with fruit buds." When young trees grow very strongly they do not usually produce fruit buds freely. If your trees blossom profusely and yet no fruit follows, we can only attribute the failure to the effects of frost in spring or to immature wood. The spurs of Pear trees are also occasionally injured during the winter when the frost is very severe and the mercury of the thermometer approaches zero. We can only suggest that you cut off any roots that penetrate the clay, and encourage by manurial top-dressings fibrous roots near the surface of the soil, and at the same time remove some of the branches of the trees that are too closely together, so that the sun and air can act beneficially in maturing the growth. The Jargonelle trees you no doubt root-pruned injudiciously. You must now by the application of fresh soil and surface mulching with manure induce healthy root-action; this with judicious pruning will aid in the restoration of the trees.

Sulphuric Acid v. Plantains on Lawns (*Shillingstone*).—We do not dilute the acid at all for this purpose. Our plan is to place it in a strong stone bottle, such as an old blacking bottle, with wire twisted round the neck so as to form a handle. It is applied to the Plantains with a stick a foot long and of the thickness of an ordinary pencil, several notches being cut round the end for an inch or two. When placed in the acid sufficient is held in the notches for killing two or three of the weeds when they are close together and can be "doctored" quickly. One drop quite in the centre of each plant will destroy it. We have tried it on Dandelions and Thistles as well as Plantains, and have found on digging up the roots a short time afterwards that they have been burnt for a considerable depth; in fact we have never found the acid fail in killing all kinds of weeds on lawns to which it has been properly applied. With a little practice a man (for the work should not be entrusted to women and boys) soon becomes expert in applying the acid, and a large portion of lawn is soon rendered free from these unsightly weeds. The stick must not be rubbed on the grass, as it leaves brown marks wherever that is done, as it frequently is by those using the acid the first time.

Arsenic for Destroying Weeds on Walks (*Idem*).—Dissolve 1 lb. of powdered arsenic in 3 gallons of cold water and boil it, stirring it well when on the fire; then add 7 gallons of water holding in solution 2 lbs. of soda; boil and stir again, applying it when hot to the walks through the rose of a watering pot, taking especial care to protect the grass or other edging with boards, or the

poisonous liquid will do much damage. The quantity named is sufficient for 25 square yards.

Making a Propagating Case (*Idem*).—You can make an excellent propagating case by enclosing a portion of the hot-water pipes. The best plan would be to have a shallow tank 2 inches deep to form the base of the bed, a trough from the tank protruding through the wall to show the depth of water in the tray, and for replenishing when needful. The tray should stand on the pipes and be perfectly firm and level. It should be covered with slates, on which can be placed 6 inches in depth of cocoa-nut fibre refuse. Bricks on edge will be suitable for enclosing the pipes, but stout deal boards last for a considerable time. The space should be covered with a well-fitting yet easily removable glazed frame light placed at sufficient height above the plunging material to accommodate the cuttings you desire to strike. In a well-managed propagating case of this kind hundreds of cuttings can be struck and seedlings raised during the spring and summer months.

Renovating Old Pear Trees (*Young Gardener*).—We presume that the trees produce an abundance of growth each summer, but form no fruit spurs. Root-pruning will not render such trees fruitful; yet if their growth is very luxuriant you might remove the soil from the roots and sever any that take a directly downward direction. The fact that fruit is produced on the extremities of the branches of the trees on walls suggests a remedy. With a saw remove the fruitless spurs close to the main branches, paring the "cuts" smoothly with a sharp knife. If the branches are covered with moss it will be well to dress them with freshly slaked lime, the colour of which can be toned down with soot if required. This will cleanse the bark. In the spring fresh growth will be produced in clusters all along the stems; this must be thinned out by rubbing off a great number of the shoots, not cutting them, eventually retaining only those that are short-jointed and placed 2 or 3 feet apart. These should be tied down to the main stems, and if they are not shortened they will in due time produce fruit spurs precisely in the manner of the extremities of the branches. The exact distance for leaving these young growths can only be determined by their character. If the growths are very luxuriant they may be bent and trained backwards along the main branches—that is, with their points directed to the trunk of the tree, but if only of moderate strength this is not necessary. By adopting this practice you will have no fruit for two years; but after that time fruit will in all probability be produced freely over the entire surface of the wall, and with judicious pruning the trees will continue fruitful for a considerable time. We have proved the value of this method of rendering old Pears fruitful, but it is only applicable to trees that are healthy and free from gum and canker.

Names of Plants (*A Constant Reader*).—6, *Cratægus coccinea*; 7, *Rhododendron Wilsoni*; 8, *Picea cephalonica*; 9, *Taxus baccata adpressa*; 10, *Sequoia sempervirens*. (*Aske*).—The specimens are so small and unsatisfactory that it is impossible for anyone to name them with confidence. No. 5 appears to be *Retinospora plumosa*, and 1 and 3 are probably varieties of that species; 2, *Jupinerus chinensis albo-variegata*; 4, *Retinospora plumosa aurea*; 6, *Thuja Lobbiania compacta*; 7, *Retinospora obtusa*. (*G. O. S.*).—*Berberis vulgaris* var. *nigra*. (*C. F.*).—1, *Dendrobium Gibsoni*; 2, *Cyanophyllum magnificum*. (*William Gorrie*).—*Satureia montana* or Mountain Savory, a native of mountains in the south of Europe. It has been long known in this country, having been introduced about the middle of the sixteenth century.



POULTRY, PIGEON, AND BEE CHRONICLE.

BREEDS OF CATTLE ADAPTED FOR DAIRY FARMING.

THE fifth annual Dairy Show, which opened at the Agricultural Hall, London, on the 26th of October last, proved a successful meeting, and as a whole was highly suggestive in various ways. It not only served to inform the public of the breeds of cattle kept for dairy purposes, but it exhibited the machinery and the methods whereby milk is converted into cheese and butter. It also opens an inquiry as to how and in what proportion different breeds of cattle contribute towards the production of these articles. The owners of cattle, too, are enabled to obtain information relating to all the details of breeding, rearing, feeding, &c., whereby they may attain success in dairy farming, which is now becoming the most important business connected with the occupation of pastoral districts throughout the kingdom. In the consideration of our subject we will discuss the advantages of the varieties of cattle as they were placed on the prize list at the Dairy Show.

Shorthorns take the leading position, and are justly considered the most important dairy stock now to be found in this or any other country. In order, however, to enable them to maintain this high position the greatest care, vigilance and almost hourly attention, are requisite, backed by the most experienced, judicious, and intelligent management in all the details of breeding, feeding, and housing, together with the manipulation and manufac-

ture of the products in milk to the best advantage of which industrious people are capable. We must, however, call attention to the difference in breeding cattle for the dairy as compared with those to be reared and fed for the butcher, the latter object being often in the ascendant. This is especially the case when we engage to rear all our animals within certain lines—namely, by pedigree, for it frequently happens that breeders in their endeavours to keep to pedigree make dairying capacity a secondary object. They concentrate all their knowledge and perseverance on one object—that of producing animals of a fashionable colour, and possessing what is called quality and correct outline, together with wide, deep, and long form of the body, being perfectly satisfied if the cows will rear a calf only without assistance from artificial feeding. Now, we need scarcely point out that this mode of proceeding is directly opposite to that required in the breeding of cattle for yielding dairy produce. Although it is highly desirable to breed cows which possess the double advantage of being great feeders as well as deep milkers it is very seldom attained, as it requires the most judicious selection and mating. When success has attended the efforts of some celebrated breeders they have attained their object entirely from the selection of exceptional animals, and by unusual endeavours have succeeded in converting the produce into a high-class breed. At the same time, however, our own experience teaches us that it is far easier to obtain a high class of stock than it is to maintain them as such. The reason of this we have found in the fact of the best milkers being often imperfectly formed as regards the forequarters, because as a rule those cows which are wide over the heart with heavy forequarters are seldom good milkers, hence the difficulty of combining heavy flesh and correct shape with deep milking capacity in the same animal. These are matters of so much importance in the breeding of dairy stock that we have—in the interest of the home farmer, and particularly the young men, so many of whom are yearly entering on dairy management—dwelt upon the subject at greater length than some experienced men may consider requisite. As we are now referring only to rearing cattle for dairy purposes it should be understood that for several reasons we advise moderate feeding at periods when the animals are not yielding milk, because they are likely to be more healthy as young stock, more likely to breed early and more regularly after bringing their first calf, and during the time cows are out of milk they are not so likely to accumulate fat internally, which is frequently the cause of the drop or downfall in the udder after calving.

In selecting animals for breeding both sire and dam should be certified as being saved from good milking stock, and this is of the highest importance, whether breeding from pedigree stock or ordinary Shorthorns. The time which the cows or heifers should calve is usually regulated by the requirements of the produce. If the making of cheese and butter is the object the calves should drop about February or March, so that they may be removed by the time the grass is ready for feeding. With respect to heifers, they should bring their first calf in April or May. Calves reared to make good any losses in the dairy by cows becoming barren, &c., should be weaned early, and kept well enough to maintain them in health and in a growing state. The first food should be new milk for about two or three weeks, then skim milk, or some of the various substitutes which will keep up their condition. After going out to graze they should have shelter at night, or lie on a very dry sheltered paddock, and be offered hay and a little cotton cake. The only fear of disease is from the scour or quarter ill, and the treatment we have stated is likely to avoid these complaints. There is much controversy as to the age the heifers should drop their first calf; we incline to and believe the balance of opinion of the best dairymen is that they should not breed until they are from twenty-six to twenty-eight months old.

Having been carefully managed and moderately fed up to that age the heifers may, in the interest of their future value, suckle their own calves, and several others in succession for making veal, and nearly up to the time when they are due to calve again. With the greatest care in hand-milking it is certainly not like the calf sucking, nor will the animals continue to yield milk either so much or for so long a time in any way as by suckling calves. When we consider the effect of this in the future profit of a cow, especially as to the length of the milking period, it is of more importance than many dairymen admit, simply because it is not fashionable amongst their craft to continue milking the cows until they begin to spring for the next calving time. This leads to one of the most important points in the whole range and detail of dairy farming, for after being allowed to become dry for several months before the cows bring the second calf they will often do so again in the future, in spite of the most careful management. There is, however, a strong feeling of prejudice in the minds of many otherwise practical and experienced men that it is advisable that the cows should go dry for two months at least before producing another calf. We are, however, justified by our own experience in opposing this practice, because whilst the well-bred Shorthorned cow is out of milk she is sure to make fat internally, and this is the cause of the most serious malady to which they are subject ("puerperal fever") at the time of calving. It is held, however, by the advocates of the vacant period that the cow gives more milk after calving in consequence. But we do not admit this; and even if we could reasonably do so there would still be the fact in favour of the extended milking period, to say nothing as to the danger of losing some of the most valuable cows in the herd, as it is what we call the best doers which are most likely to suffer.

We must now refer to the daily life of the cows in the pastures. First of all kind treatment, which will always keep the animals in a docile and quiet state, is of much importance, as well as good and fresh pasturage, and this should be constantly changed. The herds for daily management should be not more than from twenty to thirty in number, in order that they may have the advantage of more change, for although each portion of the herd may succeed the other daily on the same pasture it is preferable to a large number feeding together without the change. It is also a matter of great consequence that only a moderate number be herded together, for we have known serious injury occur to the cows when large numbers are hurried through a common gateway.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Wheat land preparation, manuring, and seeding will continue to employ the horses for some time yet, as in consequence of the changeable weather which has lately prevailed some delay on almost all soils has occurred. Still, where there is Clover lea to be ploughed, this work can be continued when the fallows or ploughed surfaces cannot be worked with advantage. Upon light dry hill land the ploughing after roots fed off by sheep should be very shallow—just deep enough that all the surface soil may be turned over; a depth of 3 inches will suffice in that case, and the presser following the ploughs, the land will then be left in a fitting state to be sown broadcast immediately behind the ploughs. Under the circumstances is better than drilling, for the seed will fall into grooves formed by the presser, and will be effectually buried by about two times with the iron harrow. It will also find a firm bottom for the young plants to root in, so essential to their healthy growth, which they do not always obtain when the land has been worked down before drilling. The home farmer will understand that by sowing after the presser the plants will stand in lines not quite so regular as when drilled, but quite regular enough for horse-hoeing in the spring. The lines will stand about 10 or 12 inches apart, and in horse-hoeing a few plants would be destroyed, yet leaving quite enough to maintain a good plant at harvest. We wish, however, to call attention to another plan of sowing Wheat, especially in November or December, for the weather which usually prevails in these months in our climate is an alternation of rain and night frosts, which often impede the sowing upon land that has been ploughed some time previously. Upon light free-working land after roots have been fed off it is a good plan to sow the Wheat broadcast and plough it in with a fleet furrow, which after being harrowed down the Wheat seed will not only be thoroughly buried but will find a firm holding for the plants at the bottom of the furrow. The distance we have named for lines of Wheat may by some farmers be thought too wide for light land, but it must be remembered that such soils are generally subject to weeds like the Poppy, Charlock, &c., which injure the Wheat most seriously unless destroyed by horse or hand hoeing. Upon the best-managed hill light land farms we have seen all the cereal crops have been drilled at 12 inches apart. As the season advances we prefer to sow red Wheats, such as the Golden Drop and the nursery varieties, as they are more hardy and maintain plant better under adverse and winterly weather than the white sorts.

Hand Labour.—As the Wheat sowing approaches conclusion other

work for the men will spring up, such as assisting at the threshing of Barley, fine weather being chosen for the purpose; and if the ricks have been made a moderate size, and such as each may be all threshed during a short winter's day, the straw being also stacked and thatched the following day, and the corn dressed and sacked up in the same way that it is done by one of Clayton & Shuttleworth's best and latest improved machines, it will be then fit for sale off the machine if it is thin Barley fit for the miller only. In case, however, it is almost a malting sample with some thin grains in it the bulk will still pay for careful screening, in order to separate the thin grain for grinding from the best or malting Barley. This will pay well for separating if done with the best and most improved screen. The newly patented Nalder's "Duplex" malt-screening machine is much esteemed by farmers, and is also used by the malsters for cleaning the Barley and taking out the thin grain before malting it which may be found in the sample. It is very useful to the home farmer for separating the grinding from the malting grain, and nothing in the detail of the farmer's business will answer better; because not only will the malting Barley secure the best price if the grain is of good colour and has been well harvested, but he will have the thin grain always required for the feeding of stock for use on the home farm; whereas, if the thin and best Barley had been sold in bulk without separation the whole would have been seriously depreciated in value. It is a good time now to buy young cattle for wintering, and we notice that the Irish importations are of an improved kind lately, being more like the true shorthorned stock, with good long soft hair; and the animals, whether heifers or steers, show a better outline, and as a consequence make more proof in the feeding. The sheep stock, both lambs or tegs and ewes, are coming to market in good condition. The former will pay well for the feeding during winter, and the ewes to lamb from January to March. Farm horses are cheaper, there being so many farm stock sales going on, besides which the statistics show that the stock in the country has increased in numbers lately. A large crop of roots, especially of Swedes and Turnips, is general throughout the country, and in some cases on heavy land they are being passed through Gardner's cutter and spread and ploughed in, but more especially where farmers are short of cash and cannot buy stock to feed the roots on the land or in the cattle boxes. The home farmer, however, should have cash at command for all the requirements of the farm, both in stock and otherwise.

ADVANTAGES OF A HOME FARM.—No. 5.

SHEEP, GRASS, AND HAY.

WHEN the rickyard contains a good stack of Clover hay, two or three substantial ricks of prime new meadow hay, with enough old hay remaining to carry us into the new year, then we are not afraid of a long hard winter, nor are we obliged to sell lean stock at a loss. This year the red Clover was a heavy crop, but the small size of the other ricks bears evidence of the falling-off in the supply of meadow hay. The long duration of dry weather in spring and early summer told upon the grass land with especial severity; the growth was so much below par that many farmers waited fully a month later than usual for the hay harvest, and consequently much hay of inferior quality was made owing to the earlier growth having shed its seed and become sere and white long before it was cut. I am accustomed to reserve 40 acres of grass for hay, and pay particular attention to certain cultural rules which experience has shown may not be infringed with impunity. No sheep are allowed to feed upon it after February, for late feeding in March undoubtedly does much injury to the hay crop. Romney Marsh sheep do not thrive upon the low-lying, cold, wet land of their native marshes in Kent during winter; they are therefore driven to the uplands at Michaelmas, and then large flocks of them come into hilly Sussex to be distributed in pre-arranged numbers among many of the farmers, with whom they remain till Lady-day. Now as this falls on March 25th they are apt to prove a source of loss during the last two or three weeks of their stay, "eating the heart out of the grass" to its serious detriment for hay, and it would be a nice calculation to decide how much actual profit is derived from the 10s. or 12s. per head that is received for the six-months "keep." The soil is so thin and poor that unless the grass land reserved for hay has an annual dressing of manure it deteriorates so much that about half a crop is the result even with the most favourable weather. The application of manure to the whole of it in March is therefore never omitted; no dung mixture is used for this purpose till it is thoroughly decayed. Spread as it is carted on the land, it is at once worked well in with a bush harrow; any stray stones are picked off, and as soon as it is dry enough it is rolled. We generally contrive to spare enough farmyard manure for 30 acres, and the remaining ten have artificial manure, which is also applied early in March. It is a moot point which kind of manure is soonest exhausted or rather absorbed into the plant's system. The fact of the prepared artificial manure powder being most soluble has probably given rise to the popular opinion that the benefit derived from it, though undoubtedly great, is in

comparison with farmyard manure brief in its duration. I have watched the effects of both classes of manure closely, and have found it so evenly balanced as to induce me to place both upon a par as valuable fertilisers.

This result is of the utmost importance to those of us who carry on farming in a hilly country at a considerable distance from a railway station. Mr. Lawes, a high authority upon questions of manure, uses 14 tons per acre of farmyard manure upon his land. Now I cannot procure manure of that class in this neighbourhood, and if I turn my attention to London dung, of which there is plenty in the market, the lowest price is 9s. 6d. per ton at a railway station five miles off; add to this 5s. cost of cartage per ton to the farm, and we have the startling total of £10 3s. per acre for manure. Gladly, therefore, do we turn to the artificial manure which is delivered at the same railway station at £8 10s. per ton for quantities of not less than 2 tons. It is applied to the land at the rate of 4 cwt. per acre, and the total cost including cartage and labour may fairly be stated at 36s. per acre—a reasonable rate of expenditure, for which the land in all favourable seasons as to weather yields a fair return, not only in its ton or more of hay per acre, but in that after growth so valuable for the dairy cows, and which alone is sufficient for their maintenance during August, September, and October.

Haymaking is such an important operation that it must be reserved for consideration at an appropriate time.—EDWARD LUCKHURST.

MALTING BARLEY FOR CATTLE FEEDING.

As the time is near when farmers will be malting Barley for cattle, we have asked a scientific maltster of many years' practical experience to give us a few plain hints for publication; the following are his remarks:—

PLANT.—I should advise farmers to be very cautious in buying or building the various things required for malting. Bad as some Barley may be, it may still pay for proper treatment, and for this purpose some little care and knowledge are required. It is not improbable, therefore, that some of the small country malt-houses, now but little or at all used, may under the new system be put to work for this purpose. A farmer may probably find it better to send his Barley to one of these places and pay 2s. or 3s. a quarter to have his malt properly made. Perhaps one large farmer, or a combination of smaller ones, may find it pay to hire one of these buildings than to have all the trouble and expense of erecting them. In the process of working, too, the grain must be attended to at the right time whatever else may be in hand, and it may not improbably be found inconvenient and expensive to take a labourer three or four times a day from his regular employment to look after a few sacks of malt. Those who decide to give the new plan a trial on their own premises might begin with a few tubs for wetting, a level floor of almost any sort for working, and a bit of hair-cloth or wire, enclosed, with an opening into an existing chimney for drying. In making the kiln it will be well to forget all the traditions of malting—as it will in some other respects also—for when malt is made for beer, *flavour* that can be developed by heat is an important consideration, while that for cattle need only be dried at “sun heat,”—say, beginning at 70° and not exceeding 130°. It is very probable, too, that our manufacturers will soon be offering a cheap handy small kiln for this purpose.

Steeping.—Under the excise laws the maltster was limited as to steeping and sprinkling the growing malt, so it is as well to forget the usual fifty hours, and let the Barley lie under water for a time, varying with the weather and the quality of the corn. In winter, and with stout flinty grain, seventy or eighty hours would not be too long.

Working.—When the water is drawn off the corn may remain in the steeping vessel for a day, or till it acquires a slight warmth—say not exceeding 60°. It may then be turned out on the floor at such a thickness as will keep it about this temperature and bring out a short bushy root. To keep this root short, strong, and healthy—not dried or shrivelled—is the object to be attained, and the growing corn must be stirred, turned, and sprinkled as often as may be found necessary to secure this. Especially must it be remembered that in no case should it be allowed to heat or “get together,” for in that case an unpleasant flavour will be produced and a loss of quality sustained.

Drying.—After lying from eight to seventeen days on the floor, according to weather, &c., the acrospire should be at least half-way up the back, the interior of the grain all flour, and should make a mark like chalk on the finger nail. The water should be all out of it, and it should now be put on the kiln, turned occasionally, and dried sufficiently for keeping.

I think there will be no necessity for screening, as the whole—

root and all—may be ground up together. It may be well to add that the process should take place in cool weather, and with Barley fresh from the straw; and, further, that under certain circumstances other grain may pay for malting better than Barley. It is quite out of my province to say a word as to feeding, still it may not be amiss to caution beginners that it will most probably be found that malt alone will not be so profitably used as when mixed judiciously with other food.—(*Land Agents' Record.*)

THE CRYSTAL PALACE POULTRY SHOW.

THE schedule of this great Show reached us somewhat late. There is always but a short interval between its publication and the close of entries; we suppose that its great prestige warrants this. The Dorking and Cochin classes are much the same as in former years. Langshans and Black Cochins are classified together! There are no less than seven prizes for Dark Brahma cockerels, the first being £15 15s.; for Dark pullets there are six prizes, the first being six guineas. Light cockerels and pullets each have a first prize of the same amount. There is a class for La Flèche, two for Plymouth Rocks, two for Andalusians, two for Sultans. Japanese Bantams again have a class to themselves. Ducks seem liberally treated with no less than nine classes. There are again two classes for respectively the heaviest cockerel and the heaviest pullet, but this year with the proviso of their being “suitable for the table.” There is also another class for the best couple of cross-bred cockerels or couple of pullets (not capons), in which “fineness of quality, smallness of bone, absence of offal, and closeness of plumage is to be considered in preference to mere weight; sex and breed of parents must be stated.” Among the poultry Judges we see the names, new, we think, at the Crystal Palace, of Mr. T. C. Burnell, Mr. S. Matthew, and Mr. T. Raines.

For Pigeons there are ten classes for Pouters and one for Pigmy Pouters, a champion class and twelve other classes for Carriers, twenty-one for Dragoons—which embrace almost every age and colour—six for Tumblers, three for Fantails, seven for Jacobins, eight for Owls, seven for Turbits. Frillbacks for the first time have a class to themselves, and Magpies now have three.

If there are among our readers any who love poultry and Pigeons and have not seen the Palace Show we advise them to make an effort to attend it this year. The place is unequalled for such an exhibition.

FOWLS AND THE COLD WEATHER.

THOSE who have given much attention to fowls can pretty well tell what cold different varieties will enjoy throughout the winter without being injured, but others with less experience are often seriously alarmed on the approach of winter as to how their favourites will bear it. When a new breed has been taken in hand their hardy and tender points have to be ascertained, and practical hands soon learn this; but beginners are not so quick, and are more careful—in fact, they are, as a rule, too careful. Fowls which have been coddled and pampered in fine weather will never endure cold well or severe weather, but those which have been brought up in an ordinary hardy way will scarcely feel the change of weather; indeed, many fowls seem to enjoy better health in cold weather than they did in the hot season. Cold certainly sharpens their appetite, and this itself is an advantage when they are to be fattened for killing, or backward pullets for laying. Since the weather began growing cold our fowls have eaten more food than they did before. They are also redder in the combs, and have more spirit. Very hardy breeds of fowls, or those which have been used to it, will sleep out on the trees and bushes all night for the whole of the winter, and never appear in the slightest way harmed. Wet is more injurious than cold, and the two combined are worse still. The most tender fowls will bear much cold, but wet soon generates disease. We should have no hesitation whatever in allowing the most tender fowls to have a long and good run out on a sharp dry frosty day, but we prefer keeping them inside or under cover when it is raining or snowing. This particularly applies to crested fowls, as when the crest becomes wet it is a long time in drying in cold weather, and they are very liable to have as the result a severe cold in the head. Those with wired runs and covered houses can easily give their fowls whatever treatment they like in the way of letting them out or keeping them in; but many have not the convenience, and the best advice that can be given to such is to allow their fowls freedom in dry weather and keep them under cover as much as possible during wet. They had better be crowded together in their roosting houses or sheds for a day or two than be allowed to become thoroughly drenched. With an ordinary amount of care in this way no one need be afraid of their fowls being injured by

the cold in winter—at least, I have never experienced anything of the kind, and I have kept some of the most tender breeds. But it is not always those that look most tender that really are so. Most people who see our Sultans exclaim, "What tender fowls they must be!" but it is quite the reverse, as I know of no variety of fowl so hardy.

Careful feeding is a great assistance to all fowls in cold weather. Much that benefits them in summer should not be given to them in winter. Warm food in the morning is suitable; barleymeal is our morning feed throughout the winter. It is mixed with water as hot as the hand can bear, and given to them at once. The last feed at night is grain. They do not become hungry again on this so quickly as on soft food. In very cold weather I generally place the grain in a tin dish, pour a little water or beer over it, and place it in an oven until it is warm, and let them have it in this state. This has a tendency to keep them comfortable during the night, and it also increases the supply of eggs, which are very liable to become scarce in cold weather.—J. MUIR, *Margam*.

VARIETIES.

WE understand that a general meeting of the Poultry Club will be held in the Crystal Palace on Tuesday, November 16th.

— SULTANS AT THE DAIRY SHOW.—We were pleased to observe at the Dairy Show last week that our correspondent, Mr. J. Muir, Margam, won the first prize in the Any variety class of fowls with one of the most promising pair of young Sultans we have seen for a long time. Although only six months old they were in splendid plumage, and their faultless colour testified to Mr. Muir's skill in practising what he lately advised in these pages about washing white fowls before sending them to exhibitions.

— EXHIBITING POULTRY.—A successful exhibitor writes as follows:—"As the season of poultry shows is coming on we may give a few hints to beginners, for probably some of your readers who have never before shown poultry will do so at some of the coming autumn exhibitions. Birds caught up suddenly from large fields and woodland runs will not do themselves justice. It is well to keep two or three show pens, which can be purchased from any of the great makers and contractors for such things, and accustom birds to them beforehand. We have known inferior birds from our own yards defeat others, manifestly their superiors at home, from being used to a pen, standing up boldly, and so displaying themselves to advantage. Poultry with white carlobes, such as Hamburgs and Black and White Bantams, are greatly improved in their lobes by confinement for a week or ten days under cover."

— BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES ASSOCIATION.—At the Council meeting held October 26th, 1880, at the Grand Hotel, Bristol, it was decided, in accordance with a wish expressed by the Tunbridge Wells Local Committee, that the Show of next year be fixed to commence there on Monday, June 6th, and close on Friday, June 10th. The principal alterations in the list of prizes had been the addition of a class for agricultural yearling colts, and the increase of the second prize for cart mares. The Committee of the Sussex Herd Book Society having offered to add third prizes to all the classes for Sussex cattle in the Society's list, the offer was accepted by the Council with thanks. The fees for the entry of horses were decreased, and will in future be 20s. for each entry for members of the Society, and 30s. for non-members. It was also decided to receive post entries up to the 1st of May on payment of additional fees—viz., 10s. for each entry for horses, and 2s. 6d. for cattle, sheep, and pigs. Letters from Mr. George Simpson of Wray Park, Reigate, and others were read, requesting the Society, in consideration of the growing importance of the Channel Islands breeds of cattle and their large representation at the exhibitions, to place them in the same position in the prize list as the Shorthorns, Sussex, and other leading breeds. The Council, however, while anxious as far as possible to meet the wishes of so influential a class of exhibitors, regretted their inability to comply with their request in consequence of there being at present no funds available for the purpose. Mr. R. H. Bush presented the draft list of prizes offered for poultry and Pigeons at Tunbridge Wells, which was received and adopted. The list had been considerably improved by the addition of third prizes in all the classes and the lowering of the entry fees.

— LIVE STOCK RETURNS.—As to the various kinds of live stock there appears to be a slight decline in agricultural horses, caused, it is stated, by the number of unlet farms, and also a decrease in brood mares and young horses, for which the demand has not been so great recently. Moreover, the stock of horses had increased up to last year, when the numbers were larger than in any year since 1870. The imports of horses from abroad were 26,000 in 1878, 15,000 in 1879, and only 6,600 in the first eight months of the present year. As regards horned cattle, milch cows have decreased less than 1 per cent., but other cattle show an increase of nearly 2 per cent., so that the total number of horned cattle in Great Britain is this year 5,912,000 as compared with 5,856,000 in 1879. Sheep in the country have suffered an important decline of nearly a million, chiefly owing, the collectors state, to the losses by disease, and lambs have also decreased more than half a million, partly, it is stated, from the weak condition of the ewes. The stock of sheep and lambs is now only 26,619,000—which appears to be a very insufficient number considering the additional permanent pastures of late years. It may be remarked that these great losses in sheep and lambs have occurred only in England and Wales, the counties of Scotland with few exceptions showing a small increase in sheep and a considerable one in lambs, while the northern border counties of England have also escaped in great measure. Pigs have further decreased by 91,000 since 1879, and by 483,000 since 1878, the competition of American bacon being stated to make pig-keeping less profitable than formerly, while, as before mentioned, the sanitary regulations in populous places tend also to diminish their numbers.

— ACREAGE OF GREEN CROPS.—As regards the green crops we find from the recently published agricultural returns an increase of 10,000 acres planted with Potatoes, and the area 551,000 acres is nearly equal to the figure of ten years ago. Turnips and Swedes were returned as grown on 2,024,000 acres, a small increase from 1879, but Mangolds show a decrease of nearly 6 per cent. from last year. Cabbage, Kohl Rabi, &c., of 4 per cent.; and Vetches, Lucerne, and other green crops of more than 15 per cent., the acreage this year being only 380,000, making the total area under green crops 3,477,000 acres, or 2 per cent. less than in 1879. Green crops on the whole have shown little change during the last ten years, but the present year's figures are less than in any year since 1868. Flax has increased somewhat from the average of the last five years, but the area, 9000 acres, is still less than half the acreage grown ten years ago. Hops were planted on 67,000 acres, about the same area as in 1879. A return was added last year, and is continued this year, to show in greater detail than in counties the districts in which the Hops are grown. Bare fallow in Great Britain has further increased from 721,000 acres to 812,000 acres, and has this year taken a larger area than in any year since 1870, when there were only 610,000 acres in fallow. The depression in agriculture and the number of farms unlet and temporarily farmed by their owners are stated by the collecting officers as the chief reasons of so much land being uncropped, and the foul state of the land is also noticed in some districts. Clover and rotation Grasses have varied little in their acreage from 1879, showing 4,434,000 acres at the present time. Permanent pasture and meadow have increased by 260,000 acres since last year, and now amount to 14,427,000 acres, or nearly 45 per cent. of the cultivated area of Great Britain.

— HOG PRODUCTS OF AMERICA.—Pork-packing in the west has, says the "American Cultivator," increased from 1,652,220 head to over 6,000,000, in round numbers, during the past thirty years. The old "razor-backs" of the generation passing away are giving place to modern improved breeds—viz., the best strains of Poland China, Chester White, Berkshire, &c. Of barrelled pork packed in the country about 70 per cent. is put up in six cities—Chicago, Cincinnati, St. Louis, Indianapolis, Milwaukee, and Louisville. Since March 1st, and including twenty-eight weeks, the number of hogs packed aggregate 4,310,901, against 2,885,658 in the same time last year; and the winter packing figures up 6,950,000 against 7,480,000. Total packing since November 1st, 11,260,000, against 10,385,000. Exports since November 1st—of meats, 785,000,000, against 766,200,000; lard, 347,000,000 lbs., against 304,100,000; total product, 1,132,000,000 lbs.

against 1,070,600,000 lbs. These are royal figures, expressive of the American trade in hog products. Hogs have declined about 20 cents. per 100 lbs. in the Chicago market, and the receipts at that point are running steadily below the corresponding time last year.

THE BEE SEASON OF 1880.

THE bee season in Scotland has been, I believe, on the whole satisfactory to apiculturists, especially to such as have apiaries within easy reach of the Heather, that best of honey-producing autumn plants. But for this, however, the results in many districts would have been far from favourable. Such, at least, has been our experience in Midlothian.

The past spring opened promising enough considering the sad condition in which the previous autumn found our stocks both as regards population and stores. Inauspicious weather supervened, however, and being somewhat prolonged breeding went on so slowly that in April little progress was perceptible, the older bees disappearing faster than the accession of the young from the brood cells, so that the weaker hives dwindled away simply from want of a sufficiency of bees to carry on the necessary work. More favourable weather followed in May and June, and breeding was again in full progress. Still swarming was not so general as in ordinary seasons, and honey-gathering was extremely meagre. Summer honey-yielding blossoms were not so plentiful as usual, and as time went on appearances became even more gloomy; so that bee-keepers like myself, who do not benefit by a proximity to white Clover-growing pasture lands, had a poor return of flower honey, and in some cases feeding had actually to be resorted to to prevent starvation. But another chance still remained. The Heather season was at hand. August commenced under auspicious circumstances; good weather set in early in that month. The bees were forthwith dispatched with all haste to seek their fortune among the Pentland Hills, and retrieve if possible the shortcomings of the summer, and not for many years has there been a fairer prospect of success. The Heath was rich and luxuriant, its purpled blossoms abundant and opening. Could the result under such circumstances, and with a continuance of good weather, be doubted? In a little over four weeks these comparatively empty hives were brought back to their summer stances laden with golden stores, some having gathered from 40 to 50 lbs. of honey.

Scottish apiarists who have thus availed themselves of sending their hives to the moors and Heath-clad hills will find them, even after the appropriation of some well-filled supers, in splendid condition for wintering; and it may be hoped that having at last obtained, on the whole, one good honey season, it may be the harbinger of a series of prosperous years to follow.—J. LOWE, *Slateford House, Edinburgh.*

NOTES ABOUT BEES.

SURELY bees were never in a better state of health and spirits than they have been this October. It has not been necessary with me to feed more than one hive which I had plundered rather freely, and which had been disturbed by the union with it of the population of a stock of degenerate Italians, whose queen it was desirable to dispose of. At such times there is always some extra consumption of food; yet even here 5 lbs. of sugar was enough to make-up what was needed, because of the surprising quantity of Ivy blossom honey which all hives are storing as busily as in summer-time. I see cells on the outskirts of the combs that had been quite empty glistening with this honey, which seems to abound in unusual quantities. Of course breeding is going on largely, and pollen is taken in in fair quantities. The honey itself is simply unsuited for human food, but good enough evidently for bees; perhaps there is something of the nature of a cordial in its pungent acrid flavour, which may be specially useful to bees at this time of year.

My experience this year with long expanding bar-framed hives holding as many as sixteen frames has led me and others to think that little is left to be desired by the practical bee-keeper. Mine, I think, are too narrow and not deep enough. Large frames would answer better; but the principle is, I am persuaded, a good one. I have four such hives in operation, and although each began the year with little more than a pint of bees, they have in every case filled every comb first with brood, then with honey, and given me some good comb besides in supers. Two of them swarmed, one of the swarms being lost during my absence from home, but apparently with little diminution of the population. A good size of frame would be 14 inches clear width, and 9 inches in depth. In winter dummy frames at each end reduce the home nest to seven or eight combs. The ends should be filled with shavings or paper loosely crumpled up. There is practically no

limit to the length of these hives, which may be made to hold twenty frames in a good honey district, to which the bees can have access given over and above the brood nest from time to time as they need room. It is only necessary to shift the dummies to the right and left, for which reason they ought not to be fitted into a groove, but should be allowed to slip easily along the hive ledge. The frames should be covered over either with the quilt or narrow strips of wood a quarter of an inch thick, so as not to uncover more of the combs than is necessary for the purpose of access to any part of them at any particular time.—B. & W.

BRITISH BEE-KEEPERS' ASSOCIATION.

THE quarterly conversazione of this Association was held on the 27th ult., and fully maintained the character of these interesting and useful gatherings. The Rev. Stewart Walford having been called to the chair, Rev. E. Bartrum, the essayist of the evening, proceeded to read a paper upon the Stewarton hive, which was at once excellent in matter, structure, and expression. Having traced the history of the Stewarton from the octagon box of the middle of the seventeenth century to the form it has reached under the improving modifications of the "RENFREWSHIRE BEE-KEEPER," he proceeded to explain, by the assistance of a set of hives, the method of management, pointing out the elasticity of the Stewarton with the advantages it possessed in preventing the intrusion of the queen into the honey boxes, both by the use of slides wide of the centre, and the presence of a super with elongated or filled cells immediately above the proper scene of her activities. The good results arising from an external case in promoting ventilation and screening from wide fluctuations of temperature were pointed out, and the great control over swarming by eeking and giving space below when required by an additional body box was well explained. Mr. Bartrum recounted his fine results with Stewartons, which were in advance by much of those he obtained with ordinary bar-framers, and referred with evident satisfaction to the doings of the acknowledged Stewarton champion, the "RENFREWSHIRE BEE-KEEPER." He also expressed a strong opinion that the attention the hive required was less than that demanded by most, and that therefore the Stewarton was the hive for the busy man. The paper closed by some stirring lessons for humanity drawn from the thrift, the earnestness, and the perseverance of the wondrous bee.

The discussion was started by Mr. Cowan, who stated that after ten years' experience with the Stewarton he could merely regard it as an excellent hive, taking a sort of middle place between the skep and the bar-frame. He could not agree that the Stewarton was less troublesome than frame hives; on the contrary, he had found all manipulations with them to be slow. The advantage of eeking as preventing swarming was easily reached in ordinary moveable-comb hives by giving space in the centre of the brood nest when a disposition to swarm would be quite as thoroughly controlled. He thought the large quantity of honey that the Stewarton system required to be gathered before boxes could be removed a disadvantage. He stated that a crate of twenty-one sections would keep any stock busy if the sealed store was taken away as soon as complete, and that the honey would be the better for this prompt removal. Mr. Cowan then explained a plan he had employed this autumn to save trouble in obtaining sealed store for wintering stocks. He removed a queen and then fed the bees freely, keeping the hive artificially at a high temperature. Perfect slabs of comb, every cell sealed, were soon at command, and these were divided amongst other stocks as needed.

Mr. Cheshire pointed out that he had made every comb moveable in the Stewartons he used by adding frame sides but not bottoms to the outside bars, making these triangular in section. He said that a few years since it was common to so manage the frame hive that it was practically inelastic. Swarms large or small were alike put within, and but few dreamt of reducing the internal capacity under any circumstances, not even in winter. The Stewarton, on account of its expansibility, would have over frame hives, thus handled, no inconsiderable advantage; but the frame hive as we now find it in good apiaries can be adjusted with much greater nicety than the Stewarton, which must pass at once from one body box to two. He gave some account of the nature of the instinct which forbade swarming with an unfilled eke, and pointed out that frame hives gave much better opportunities for enlarging the brood nest in spring to promote breeding than did the Stewarton. He said that bees true to mathematics gave their brood nest a globular form, as this figure had the largest mass for its surface, and thus was most economical of heat and labour. When this form was interfered with every effort was made to restore it. Single Stewarton boxes would winter well, especially if surrounded by chaff and supplied with pea flour cake, the benefit of which could not be over-estimated. He related some good results in Stewartons from very small lots of bees, which he thought he could hardly have reached with any other form (a statement with which Mr. Cowan hardly agreed), and closed by saying in reference to uniting swarms that some carefully conducted French experiments had seemed to show that bees benefit by massing until about 12 lbs. is reached, but beyond this uniting results in loss.

The Rev. G. Raynor stated that although he had found greasing the slides with tallow at first an advantage, yet the bees soon removed it, and propolised as freely as upon clean wood. The Stewarton

of thirty years since he had not found a form that could be commended, but, as we now have it, it is greatly improved, and is really in part a frame hive. Notwithstanding this he found it awkward to manipulate, and often a necessary investigation would cause the painful crushing and destruction of many bees. He thought the screws and buttons nuisances that should be at once removed, and that the great height to which the hive sometimes reached was a discomfort to the bee-keeper and a danger to the stocks. He should never like to be wholly without Stewartons, yet the ordinary frame hives were those to which he looked for the main work of the apiary. Captain Campbell explained the history of the Stewarton he possessed and his early difficulties, and stated that he had made the same addition as Mr. Cheshire, and could now apply the extractor whenever required. The slide-sticking trouble he overcame by putting between the slide and bar a piece of sheet steel about 3 inches wide and prizing the two apart till the propolis separated with a crack. He found that the Stewarton could be left longer without attention than other forms, and so liked it as thoughts of the bees did not so much interfere with yachting trips. After Mr. Bartrum's reply, the usual votes of thanks terminated a very enjoyable and profitable evening.

HONEY AT THE DAIRY SHOW.

THE idea of associating the produce of the apiary with that of the dairy was, we believe, conceived by the earnest Secretary of the British Bee-keepers' Association, and it was done so well that milk and honey, long ago the emblems of fertility and abundance, are likely again, we should think, to appear in company. The hives were but few and not particularly remarkable, those taking the first prizes in Classes 94 and 95, both made by Mr. Blake, having little to recommend them except solidity and cheapness. They both contained by example the old (we had hoped obsolete) and inconvenient rack to take the frame ends. The exhibition of honey, however, was extremely fine in quality and finish, and being tastefully staged, made not only a novel but a most inviting addition to the general exhibition. The aggregate was greater than that collected at any previous time, amounting to no less than 3 tons. As late as July of last year we had to point to the beautiful flatness of the 1½ ton of American honey shown at Kilburn; but the English producer has risen to the occasion, for not only now do we find old adepts with their perfect combs, but new names are attached to exhibits which were not inferior to the very best American examples. Mr. J. T. Thorne in the best display had sixty-two sections of spotless comb, taking first, while Mr. Cowan came second, showing thirty-six sections carrying combs perfect in form and colour. Mr. Rusbridge exhibited some beautiful slabs, but as their weight was greater than that allowed in the schedule he was not admitted into the competition. No. 1102 was wanting in flatness through neglecting the separator. Quantity helped the Judges in this class, but in the next, limited to twelve sections, they must have been sorely tried. Here Mr. Cowan justly won, putting Mr. Rusbridge second, and Mr. Thorne third; Rev. H. Peel and Mr. S. Thorne being highly commended. Mr. Smith's boxes were exceedingly neat, while Mr. Hooker showed 1 lb. sections, which in such a competition with heavier metal could not win. Class 98.—Mr. Cowan surpassed all comers with combs that would delight a geometer, Mr. Brooks taking second with extremely pretty and well-got-up boxes. Class 99.—Supers of honey. Mr. Rusbridge won with a splendid set of combs 6½ lbs.; Mr. Cowan was second with a beautiful Stewarton daintily staged with an octagon glass cover edged with light blue paper. The extracted honey of Classes 100 and 101 was for the most part excellent, but one or two exhibits partook of that porter-like tone which speaks of aphide contamination. Such honey has no chance of winning. The clarity of almost all was remarkable, proving most unmistakeably the perfect freedom from contamination of the article as thrown out by the extractor.

The difficulty of wording a schedule with regard to wax lies in the fact that where foundation is used no exhibitor could declare that he showed only the product of his own bees. We fear that this difficulty has made it possible for foreign blocks of bought wax to come successfully into competition with cakes procured from combs either worked out or built in the apiary of the exhibitor, and classified by his own hands or those of his assistant. If this be true it is at least unfortunate.

OUR LETTER BOX.

Fowls for Profit (M. F. G.).—We should advise you to try two Dorking cockerels, six Dorking pullets, and six Brahma pullets. As the Dorkings lay white eggs and the Brahmas brown, they can easily be distinguished. For early and late broods set the Brahmas' eggs, the produce from which will be very strong and hardy and good table birds when young. From February to July set the pure Dorkings' eggs, which will produce chickens excellent to eat at almost any age.

Mixing Ducks (E. C. O.).—It is impossible to be sure of the produce of two breeds of Ducks, like Aylesburys and Bueuos Ayres, kept on the same piece of water. We have this year tried it on two pools, one a very large one, and in both cases failed. There would be more chance of keeping them pure if the second breed were wild Ducks, strictly paired, or some of the very small Call Ducks or fancy Ducks.

Canary Songless (Idem).—No one can be sure without seeing your Canary what the cause of his ceasing to sing is. He may be old or weak in

lungs, or he may have moulted late and not yet recovered his song. We think the latter the more probable reason. Try a little stimulating food, such as sponge cake dipped in sherry, and have a little patience.

Ligurian v. English Bees (Comber, Co. Down).—We will reply to your letter by saying that "doctors differ" so much in regard to the merits of the one bee over the other that it is difficult to gauge those merits accurately. We have no others in our apiary but either pure or hybridised Italians. It is many years since we have introduced and used them, but with the exception that they are good-looking and the queens are wonderful egg-layers, we cannot say that we have found any marked superiority in the one breed over the other, or in the quantity of honey they gather. We have sometimes thought them earlier abroad and more active than the old English bees, but on the whole we cannot speak more positively on their merits. If others can speak better of them let them do so. Should you be tempted after this to try them let us know and we will help you further, but it is not a time of year to introduce them.

Preserving Syrup (Bertie).—The coldness of the atmosphere is probably the cause of your bees not taking the syrup presented to them. When the mercury of the thermometer falls below 50° bees can do little work either inside or outside their hives. If you were to warm the syrup and give it to your bees in a hot-house or warm room they would take it readily enough if they are in a healthy state. If you do not use it now, boil it well and keep it in a cool place. Closing the doors of your hives with perforated zinc will do no good, for bees do not fly about in cold weather. If the zinc were left on when they want to come out it would do harm. Contract the doors so that mice cannot enter the hives, and let the bees have liberty to come out when they like when snow is not on the ground.

Gold Fishes Dying (Mrs. Burt).—If the tank in which the fish was placed had been recently cemented the fresh cement would render the water injurious. We are unable to suggest any other cause for the loss of the fish.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1880. Oct.		Baromet- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Inches.		deg.	deg.		ddeg.	deg.	deg.	deg.	deg.	In.		
Sun.	24	39.264	40.2	35.4	N.E.	44.4	48.4	39.0	88.4	27.4	—	
Mon.	25	30.211	40.3	38.3	W.	43.7	48.6	32.1	60.7	27.7	0.052	
Tues.	26	29.750	40.8	39.5	S.W.	44.0	46.7	39.3	46.3	35.1	0.915	
Wed.	27	29.399	44.5	44.5	E.	44.0	58.3	38.9	60.1	39.3	0.302	
Thurs.	28	28.823	49.7	43.2	S.W.	46.0	58.6	43.7	72.1	42.0	0.399	
Friday	29	29.503	36.3	36.2	N.N.W.	45.9	47.7	34.8	59.0	35.7	0.910	
Satur.	30	30.133	34.0	31.8	W.	43.9	47.4	29.6	81.2	26.7	—	
Means.		29.726	49.8	39.2		44.6	50.8	35.5	66.8	33.4	1.678	

REMARKS.

24th.—Fine, bright, cold day; cloudy evening; fog in town, but not here.
25th.—Fine, but not very much sunshine; rain after 9.30 P.M.
26th.—Thick fog in early morning; rain commenced at 8 A.M., continued the whole day.
27th.—Foggy morning; rain all the forenoon; fine, with a gleam of sunshine between 2 P.M. and 4.30 P.M.; heavy shower 5 P.M.; windy evening, and fair.
28th.—Stormy day with frequent showers; much wind in previous night.
29th.—Cold wet morning, clearing off at 11 A.M.; fine afterwards, with sunshine for a short time at noon; cloudy evening; starlight at 10 P.M.
30th.—Thick white frost in morning, very cold, but fine dry day with bright sunshine.
Temperature lower than last week, and rather below the average. Heavy gale in night between 27th and 28th.—G. J. SYMONS.

COVENT GARDEN MARKET.—NOVEMBER 3.

TRADE keeps very quiet. Large consignments of Apples from America and Canada have again reached us. Home-grown fruit is now beginning to fall off in supply, the bulk of the crop having changed hands.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½ sieve	2	6 to 4	6	Melons	each	2	0 to 4	0
Apricots.....	box	0	0	0	Neectarines....	dozen	0	0	0
Cherries.....	½ lb.	0	0	0	Oranges	£ 100	0	0	0
Chestnuts.....	bushel	12	0	16	Peaches	dozen	12	0	18
Figs.....	dozen	0	6	1	Pears, kitchen ..	dozen	0	0	0
Filberts.....	½ lb.	1	6	1	dessert	dozen	2	0	4
Gobs.....	½ lb.	1	6	1	Pine Apples	½ lb.	3	0	4
Gooseberries ..	½ sieve	0	0	0	Plums	½ sieve	2	6	4
Grapes	½ lb.	2	0	4	Walnuts	bushel	0	0	0
Lemons	£ 100	12	0	18	ditto	£ 100	0	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0 to 4	0	Mushrooms	dozen	1	0 to 1	6
Asparagus	bundle	0	0	0	Mustard & Cress ..	punnet	0	2	0
Beans, Kidney ...	½ lb.	0	0	0	Onions	bushel	3	6	5
Beet, Red.....	dozen	1	0	2	pickling	quart	0	0	0
Broccoli	bundle	0	9	1	Parsley..... doz.	bunches	6	0	0
Brussels Sprouts..	½ sieve	1	9	2	Parsnips	dozen	1	0	2
Cabbage	dozen	0	6	1	Peas	quart	0	0	0
Carrots.....	bunch	0	4	0	Potatoes	bushel	3	9	4
Capicenns.....	£ 100	1	6	2	Kidney.....	bushel	4	0	4
Cauliflowers	dozen	0	0	3	Radishes..... doz.	bunches	1	6	2
Celery	bundle	1	6	2	Rhubarb.....	bundle	0	4	0
Coleworts.....doz.	bunches	2	0	4	Salsafy.....	bundle	1	0	0
Cucumbers.....	each	0	4	0	Scorzoneria	bundle	1	6	0
Endive.....	dozen	1	0	2	Seakale	basket	0	0	0
Fennel.....	bunch	0	3	0	Shallots	£ 10	3	0	0
Garlic	½ lb.	0	6	0	Spinach	bushel	3	0	0
Herbs	bunch	0	2	0	Turnips	bunch	0	4	0
Leeks.....	bunch	0	3	0	Vegetable Marrows	each	2	0	0



11th	TH	Brixton Chrysanthemum Show.
12th	F	
13th	S	Sale of Bulbs at Mr. Stevens' Rooms, Covent Garden.
14th	SUN	25TH SUNDAY AFTER TRINITY. [Shows.
15th	M	Stoke Newington, Lambeth, and South London Chrysanthemum
16th	TU	Royal Horticultural Society—Fruit and Floral Committees at 11 A.M. Putney, Walton, and Southampton Chrysanthemum Shows.
17th	W	Royal Aquarium, Finsbury Park, Ealing and Acton, Gravesend, Bristol, and Dartford Chrysanthemum Shows.

TRANSPLANTING GOOSEBERRY BUSHES— GOOSEBERRY CATERPILLARS.

FOR the first time for several years we have some leaves remaining on the Gooseberry bushes at pruning time, and what, too, has lately been unusual, we have good ripe growths of considerable length to be shortened. We may, therefore, with confidence expect fruit of larger size and better quality; for although the Gooseberry is very accommodating, and never fails to produce abundance of fruit where the bullfinches are kept in check, it cannot bring that fruit to perfection without sufficient foliage. I suppose everybody is aware how insipid the fruit is from a bush which has been denuded of its foliage during the growing season; but I suspect everybody does not bear in mind how much the crop will suffer in quality during the following year. It should be remembered that foliage is as necessary in summer as it is in spring, and that the processes of growing fruit buds and maturing the growths require the combined assistance of both leaf and root. I have had the most satisfactory results this season from young bushes which were shifted during the autumn of last year, and I can almost promise anyone immunity from the caterpillar during the coming season who will take up young bushes now, well wash their roots, and plant them 20 or 30 yards distant from ground which has been cropped this year with Gooseberries or Currants. It appears to me that the Gooseberry sawfly is not a great traveller, possibly it does not live long enough to travel far. I should like information on this point from entomologists, and, if it is not forthcoming I must find it for myself another season; but this much I know, that only a wall 10 or 12 feet high separated infested from clean bushes which had been shifted, and that the latter, some sixty or seventy in number, remained clean with the exception of two or three which unfortunately were slightly injured late in the autumn.

A similar experiment to this has been tried several times, and always with the same success. I therefore advise those who may be troubled with this pest to frequently make young plantations as distant as possible from the old, and where the space is limited to burn or remove the soil from around the roots of the old bushes when destroying them. I made a new plantation in the end of September, and have destroyed all old bushes except those which are on a border permanently covered with wire netting, of which more anon. It will not be too late to shift bushes any time before the middle of next

month, but the sooner they are planted the better. More of Warrington is grown here than of any other variety, as it keeps the best; and although it is a late Gooseberry I have not yet found any other so good in flavour when cooked in a green state. Many varieties are more profitable to grow for market, but anyone who likes green Gooseberry tart should test other varieties with this, and not be satisfied with an inferior one. Red Champagne is the best dessert Gooseberry I know, but it will not keep with me after the middle of September. Early Sulphur is the best early.

As the Gooseberry house, or rather the border, is permanently covered with wire netting, I have to adopt a different practice, and that, too, I am happy to say, has been successful this year. For two seasons previously a man and a boy have spent a good part of their time in this enclosure picking off the caterpillars, but the caterpillars won the day, and by the end of August there was scarcely a leaf to be seen. This season they bid fair to become more troublesome than ever, and, indeed, in this neighbourhood generally they were so. Most of the cottagers have given up attempting to grow Gooseberries, and acknowledge themselves defeated by bullfinches and caterpillars, but a few have tried to struggle on, and one old man who is past ordinary work tried his best to keep two bushes clean in his own garden, but the caterpillars were too much for him. Hellebore powder, I observe, is strongly recommended by some of your correspondents, but I will not run the risk of poisoning my employers, who eat Gooseberries very freely, preferring them to all other fruits after the Strawberries are done; and my own taste agrees with theirs, for I do not consider a Peach or a bunch of Grapes in summer fit to be compared with a handful of good ripe Gooseberries. But this is merely a matter of taste, and we must grow all kinds for visitors if not for residents.

The only safe and effectual remedy tried for caterpillars inside the Gooseberry house was fir-tree oil, and that was applied four times during the season, drenching the bushes all over by means of a syringe with a bent nozzle, at the rate of half a pint of the oil to three gallons of water. It is rather expensive to use in so large a way, but I do not expect to have so much trouble again, and I am in hopes of getting rid of the enemy altogether. One dressing was given after the Gooseberries were ripe, and that did not injure them, although applied during sunshine, the taste passing off in two or three days; but some Currants in the same enclosure were injured by using it on them after they were ripe, though it did not harm them in the earlier stages.

I find that different samples of water make a very great difference to the efficacy of this insect-killer; that which is soft and has been exposed a long time to the air being the best, while hard water is almost useless. As a rule, I think the whiter the water turns when the oil is put to it, the more efficacious it is likely to be.

I have previously said that we have two kinds of sawfly which infest our Gooseberries, totally distinct but equally destructive; now, as if that were not enough, we have this season been troubled with the larvæ of another one devouring the leaves of our Tea Roses. I daresay all these difficulties and troubles with which we have to contend are good for us, and prevent us giving way to lazy habits.

I refer to this subject now, as although there are no caterpillars to destroy, there are numbers of Gooseberry bushes that

may be removed with advantage, and the present is the time for transplanting them.—WILLIAM TAYLOR.

SARRACENIAS.

It has often seemed strange to me that Sarracenias are not more popular. Perhaps some may say that they are difficult to manage, others again may say that they are not sufficiently showy, but to these excuses I answer that they are both showy and easily cultivated. Some of the species have been introduced to our gardens upwards of a hundred years, and yet how seldom do we meet with them, except in botanic gardens and a few establishments where large collections of plants are grown. A few years ago there were only about half a dozen species in cultivation, but now in addition some fine hybrids have been obtained by Messrs. Veitch & Sons of Chelsea. The great outcry at the present day is for new plants and Orchids; but if some of the new plants that are sent out annually were nearly as attractive as some of the Sarracenias we should not have room to complain. I have been a close observer at the great metropolitan exhibitions for this last few years, and have come to the conclusion that few new plants of really sterling merit have been sent out. If Sarracenias were an introduction of the present times instead of the past I am sure they would find favour with many plant-cultivators, for when well grown they are really ornamental.

Perhaps a few words on their cultivation will not be out of place to some of the readers of your Journal who may wish to give them a trial. I find that Sarracenias are very accommodating, not at all particular as to the house in which they grow. I grow mine through the summer in a light airy greenhouse well ventilated top and bottom, and in winter I place them in the coolest end of the stove. This is merely for my own convenience, for it is not absolutely necessary that they should be in heat in winter, as I have known some growers allow their plants to be exposed to frost for a considerable time. I have tried two or three composts for them, but what they like best is good fibry peat, chopped sphagnum, broken charcoal or potsberds, and plenty of silver sand. Some prefer potting their plants in autumn, others in spring. I prefer potting in spring before they make their spring pitchers. The pots should be washed and be filled about a quarter full with good drainage, or if large a little more drainage will be all the better; over this place a thin layer of moss, and then the potting proceeds. The crown or rhizome should be slightly elevated above the level of the pot, the plants being potted rather firmly, leaving sufficient space at the top for a good top-dressing of green sphagnum. After the plants have become sufficiently large pans are the most suitable to grow them in. In their native habitat Sarracenias are found growing in boggy or marshy ground, consequently they require a good amount of water both in summer and winter; in fact, they should never be allowed to become dry. The plants when growing should occupy a position near the glass and be fully exposed to the sun, for if shaded the colouring of the pitchers is not nearly so bright. It is very necessary to guard against the flies, for these intruders are very fond of the secretion produced by the pitchers when in a young state. If the flies are allowed to become entrapped in the pitchers in any quantity decomposition soon takes place, and causes the base of the pitcher to decay. I find that placing a small piece of cotton wool in the top of each pitcher, sufficiently far down to be unobserved, answers the purpose admirably.

The following are amongst the most useful and showy forms:—

S. Drummondii.—This is one of the best species grown. The pitchers are quite erect, and from 1½ to 2 feet high, of a bright green colour, the upper part being beautifully variegated with red, green, and white.

S. Drummondii alba.—Another handsome form, differing very little from the typical species, except in the colouring at the top of the pitchers; instead of being variegated, as in the last-named, it is nearly pure white.

S. Drummondii rubra.—This is very handsome, the pitchers being beautifully variegated with crimson.

S. flava and *vars. ornata* and *pieta*.—These are all attractive forms, especially *S. flava ornata*, which produces pitchers of an enormous size, and remarkable for its bold and clear venation, which is of a dark purplish red. The flowers are large and handsome.

S. atrovirginica.—A strikingly beautiful variety. The pitchers are long and narrow, and of a greenish colour; the lid is heart-shaped, the lower part green, and the upper part blood red with a satiny hue.

S. purpurea.—A good old species, quite hardy, and producing

cup-shaped pitchers about 6 or 8 inches long, and, as the name implies, are of a bright purple colour.

S. variolaris.—This is well worth growing, and should be in every collection. The pitchers are peculiarly hooded, growing between 1 and 2 feet long, and beautifully mottled.

S. psittacina.—Quite distinct from any of the former in habit of growth. Instead of growing erect it produces its pitchers horizontally or spreading; the pitchers are light green with crimson veining, and are curiously hooked at the end, much resembling a parrot's bill.

S. rubra.—Also well worth growing if only for its flowers, which are blood red and deliciously fragrant like Violets. The pitchers in this species are not so showy as in many of the others, from a horticultural point of view, but where a collection is grown it well deserves a place.

S. Chelsoni.—A beautiful hybrid of Messrs. Veitch's raising. It is much in the way of *S. purpurea*, which is one of the parents. The pitchers grow erect, of great substance, and very wide at the mouth, the colour being a bright red.—W. K.

OXFORD BOTANIC GARDENS.—No. 1.

FEW strangers visit the city of Oxford without carrying away many pleasant memories of its antiquities, curiosities, and attractions generally. These are, of course, differently viewed and appreciated according to the particular taste of the individual, but to all they are interesting, varying only in degree. The historian, the antiquarian, the architect, the student of literature, and the casual visitor who merely wishes to see all that is noteworthy or admirable, find abundance that is instructive and entertaining. The numerous colleges, all invested with interest of no ordinary degree; the stirring history associated with so many spots; the literary wealth and curiosities of the Bodleian Library, and the contents of the various museums, especially Tradescant's collection, provide attractions which are excelled in few English cities of the same extent. Much has been and could still be written in praise of Oxford generally, but the above passing reference will suffice at present. I intend confining my remarks to what will probably most concern the readers of the Journal—namely, the Botanic Garden.

In that rare but useful work, Johnson's "History of English Gardening," occurs a passage which, as it directly bears upon our subject, may not be inappropriately introduced. After commenting upon the fact that previous to the reign of Queen Elizabeth horticulture had been regarded as little more than a mechanical art, the author continues as follows:—"Botany previous to this period was almost unknown as a science, and it must be acknowledged that botany is a chief part of the only foundation upon which an enlightened practice of horticulture can be raised. In this reign England was enriched with the first regular establishment for the scientific cultivation of plants in the Physic Garden of Gerard (1567)." More than half a century after that—namely, in 1632, the Oxford Botanic Garden was founded; and though it cannot claim to be the first established, it is the oldest botanic garden at present existing in Great Britain, nearly two centuries and a half having elapsed since its foundation. A brief glance at the history of the garden during that period may not be devoid of interest, for many men of considerable eminence have been connected with it either in the capacity of professor or curator. The founder was Henry Danvers, Earl of Danby, who enclosed five acres of land on the banks of the Cherwell, near St. Mary Magdalen's College. He had several glass houses erected for plants from tropical and temperate regions, a residence also being provided for the curator. In his will the Earl of Danby bequeathed a rectory in Yorkshire, the funds arising from which he intended to be applied to the maintenance of the garden in suitable condition, and to provide a salary for a professor, but the latter idea was not carried out for some years, as the income derived from the estate proved insufficient for the purpose. The first curator selected was, I believe, John Tradescant, but he did not accept the appointment, which was consequently obtained by a German named Jacob Bobart. This man appears to have assiduously endeavoured to increase the number of distinct plants grown in the garden, and if the catalogue he published in 1648 is reliable he must have succeeded very creditably. Sixteen hundred species or supposed species were cultivated at that time—no inconsiderable collection for the middle of the seventeenth century. Ten years subsequently another edition of this work was issued under the joint editorship of the Bobarts father and son, Dr. Stephens, and Mr. William Browne. A copy of this I have now before me, and it is remarkable chiefly for the fact that many synonyms are given with references to Gerard's and Parkinson's works where the plants named are described; the common names are

subjoined to the Latin, and there is also an alphabetical list of English names.

Dr. Robert Morrison was appointed professor in 1669. He was physician to Charles II., and is chiefly noted for his "Hortus Bloisensis," and a history of the plants at Oxford, which he commenced but did not live to complete. In 1679 the elder Jacob Bobart died, having reached the advanced age of 81, and from his time until the present century we have few records of the succeeding curators. Jacob Bobart, son of the last named, was appointed professor on the death of Dr. Morrison, but little is known respecting his works, except that he published a continuation of Morrison's history already referred to. Of Mr. Edwin Sandys and Mr. Gilbert Trowe who succeeded him it is not necessary to give any details; but the garden was greatly improved about that time by the liberality of the eminent Dr. William Sherard, a friend of Ray and Dillenius. He contributed large sums of money during his life and by will towards the improvement of this garden and the support of a professor. He also obtained the appointment of Dillenius as professor in 1728. The latter is so well known that any particulars respecting him would be needless, and the same may be said of Dr. Humphrey Sibthorp and Dr. John Sibthorp, who followed in the capacity of professor. The "Flora Græca" of the last named is justly famed. Dr. George Williams succeeded and fully maintained the character of the garden, the lowest parts being raised to avoid the inconvenience of the occasional floods to which they had been subject. Dr. Charles Daubeny was appointed to the chair in 1834. Many and important improvements were effected during his life, and are still admirably continued under the direction of the eminent and respected Professor Lawson who now holds the chair.

In connection with the history of the garden it only remains to refer to the Baxters, who have so admirably performed the duties of curators for the past seventy years. The present condition of the garden is a sufficient indication of the care and intelligence with which it is conducted; and perhaps a greater compliment could not be paid to Mr. W. H. Baxter, the present curator, than by stating that he well continues the creditable management his father exercised before him.—L. C.

TRAINING ESPALIER FRUIT TREES.

WHAT should be the proper or best form for a hedge or fence? A practical common-sense labourer would answer the above question by saying "Hog-maned or tapering upwards." Well, if that is the best form for a hedge, why should it not be the best for espalier fruit trees? But what as a rule do we see? Why, espalier fruit trees bare of foliage at the bottom, and the top tier of branches overhanging the lower. This cannot be the proper method of growing espaliers. Why not, as in the case of a hedge or fence, allow the lower branches to extend their shoots so as to encourage the formation of wood, and thus give vigour to the base of the trees? I believe their productiveness would increase on account of the increase of healthy spurs at the base of the tree.

I have been encouraging for three years the increase of the basal growths on both Apples and Pears, and can see a positive improvement in the health, vigour, and form of the trees so treated. Last season was not a favourable one for fruit crops, but I anticipate with anything like a favourable season to have better crops from the espaliers so treated than have been realised for several years. No doubt my opinion may be thought crotchety, but I maintain that without plenty of good healthy foliage and well-ripened wood it is impossible to insure good crops of fruit, and the spurs on the lower branches of the trees cannot be so well ripened as they should be if they are shaded by the upper branches. I am also of opinion that frequently for the sake of neatness fruit trees are the victims of the gardener's knife, which is as baneful in its effects as the gardener's foot.—J. GADD.

GOLD AND SILVER FERNS.

AMONG the numerous handsome Ferns which now have a place in our houses, few are more generally admired than the Gold and Silver Ferns, as the species and varieties of *Gymnogramma* are appropriately designated. Having elegantly divided fronds, usually dark green on the upper surface and plentifully sprinkled with a yellow or whitish powder beneath, being easily and quickly grown and readily propagated by means of spores, the plants possess ample merits to entitle them to popularity. It is therefore scarcely necessary to say much in their favour by way of inducing their more extensive cultivation, for there are few lovers of Ferns who do not include in the smallest collections some

specimens of these attractive plants. However, as there may be some who are unaware how easy it is to obtain such Ferns in good condition, a few remarks upon the treatment that I have found to suit them will possibly be of some utility.

Gymnogrammas are chiefly natives of tropical regions, the forms in cultivation being from the West Indian Islands and South America. One of their most important requirements is therefore a stove temperature, or such as is provided for tropical Ferns where a separate structure is devoted to them. During winter this should not be allowed to fall below 50° Fahrenheit, a range of 10° upwards being permitted; but too high a temperature at that time of year is inadvisable, as it tends to cause a weakened immature growth. In the summer the maximum should be about 80°. They need more exposure to light than many Ferns, the sunny side of a fernery or a slightly shaded position in an ordinary stove suiting them admirably. Abundance of water is required whilst they are growing and during hot weather, but as they are most impatient of any approach to stagnation the composition of the soil and the drainage must be carefully attended to. A compost of fibrous peat, light loam, abundance of sand with some small pieces of charcoal well incorporated, constitute a good soil, encouraging vigorous and healthy growth. The drainage should be regulated according to the size of the pot, placing the large potsherds at the bottom of the pot concave side downwards, filling up to the necessary height with small pieces and covering with a layer of moss. Upon this some of the compost described above can be placed and the plant potted rather firmly, allowing a moderate space from the rim of the pot to the soil to facilitate the supply of water. In some of the varieties the fronds are long and heavy with rather weak stems, necessitating the employment of a few light thin stakes, to which the fronds must be secured, or they are liable to be broken. Another point that needs attention is to avoid wetting the fronds, as the delicate silver or gold farina is quickly washed off and the chief beauty of the plants destroyed. This is one inconvenience that attends the introduction of *Gymnogrammas* into a plant stove, as unless they can be allotted a position where they will not suffer from the frequent syringing required for the other plants their appearance is never very satisfactory.

Gold and Silver Ferns are most readily increased by spores, as these germinate in a few weeks; in fact, they are some of the quickest to germinate of the whole family of Ferns. The best mode of effecting this increase is to remove the fertile fronds from the plant before the spores are fully mature, placing them in a dry warm house until they are ripe. Shallow pots or pans should be prepared by thorough drainage, upon which there should be placed a layer of sphagnum, filling up with very finely sifted loam and sand; and if the former has been baked it is better, though so much care is not needed with these as with more delicate or longer-germinating Ferns. It is one of the peculiarities of the genus that the young plants produced in this way are extremely variable both in the form of the fronds and the colour of the meal or farina, and it is owing to this circumstance that many forms, varieties, and probable hybrids have been obtained.

The following will be found a good selection:—*Gold*: *G. chrysophylla*, *G. Lauchiana*, *G. L'Herminieri*, *G. Martensii*, *G. decomposita*, and *G. sulphurea*. *Silver*: *G. Calomelanos*, *G. tartarea*, *G. peruviana* and var. *argyrophylla*, *G. pulchella*, and *G. Pearcei*.—C. S.

PLANTING POTATOES IN THE AUTUMN— PREPARING SEED TUBERS.

A FEW weeks since you stated that you would insert in the Journal any communications on planting Potatoes in the autumn. About twenty-six years ago I commenced planting in the autumn, and continued it for several seasons. They were chiefly late Potatoes. Some were planted on a heavy loam, where the slugs devoured many of the sets. The crop produced was not nearly so heavy as those planted in the spring. The same varieties were planted on a sandy loam, where the soil runs closer together; consequently the slugs did not injure the sets so much as the others. They were planted about 7 inches deep. The growth did not appear as soon as of those planted in spring; the produce was more uniform in size, but there were as many diseased tubers, and I think a few more, as they were not ready for digging so soon as the crop from the spring-planted tubers, which were not planted so deep and had more heat from the sun. I found that on the autumn-planted ground the weeds commenced growing a long time before the Potatoes, which made it difficult to keep them clean, as it was not safe to use the hoe; the heavy soil became very hard during dry weather.

I have occasionally planted a few early varieties in the autumn

on a south border, but they come up earlier than those planted in spring, and have to be covered with soil or other material to keep the frost from them, while they are not ready for digging a day earlier.

I can fully endorse all that Mr. Luckhurst says about spreading the seed tubers out thinly to be exposed to the light and air. They cannot be kept too cold provided they are safe from frost. I am surprised that so very few practise this method of keeping their seed Potatoes. I have all my early and second early seed tubers placed in propagating boxes. The kidneys are put on their ends with the eyes uppermost. It is surprising to see how many can be stored in a small space. It may appear too much labour to place them so carefully; but a man will place many bushels in the boxes in a day, and sometimes we have wet days in the autumn. The tubers are now showing their stout shoots, which will never be broken off. They will not require to be handled until they are carried in the boxes to the ground where they will be planted. The tubers do not produce growths so thick as my finger, but that is perhaps owing to my planting them earlier than Mr. Luckhurst does, as I begin by the middle of March, and have them all planted as quickly as possible if the soil is sufficiently dry to work upon.

In the autumn I ridge up all the Potato ground, the ridges being the width of the space between the intended rows. If any manure is required on the ground it is dug in at the time of ridging. At the planting time the ground between the ridges is levelled, leaving sufficient soil on the top of the ridge to cover the sets the required depth. I never in any case earth up early Potatoes, as it only places them farther away from the heat of the sun, and they are not ripe so early. I keep the hoe frequently at work until the haulm spreads, so as to prevent the growth of weeds, and the loose surface prevents evaporation of moisture from the roots. With regard to late Potatoes, if they are bursting the ground open I then fill up the cracks to prevent the tubers becoming green.—D. WALKER, *Gardener to B. H. Collins, Esq.*

WINTERING FUCHSIAS.

SINCE Fuchsias have taken such a prominent position among bedding plants, keeping them in winter has become an important matter. Left in the ground as "W. J. M." advises, the roots and crowns remain alive, but stems and branches are lost. I well remember one spring seeing a considerable number of old plants exhumed from a heap of leaves in which they had passed the winter with roots and branches all alive; but where pits or frames can be had it is better to plunge them therein and protect them from frost. I had six beautiful beds of Fuchsias this year, and the plants now fill two old three-lighted wooden frames, in which they were crowded as closely together as possible when lifted from the beds. A bank of soil is made around the outside to the top of each frame; this, with some litter thrown over the lights when necessary, served admirably to exclude frost during the last two severe winters. Inside the soil is excavated deep enough to admit the tallest plants: care has, however, to be taken to do this on a position sufficiently elevated to be safe from flooding, which would prove fatal to the plants. By this rough and ready means I have in spring a large batch of most valuable bedding plants, which are planted out early and quickly become ornamental, retaining their freshness and beauty till the first severe frost of autumn warns us to take them into winter quarters once more. Not only do I value beds of mixed Fuchsias for their beauty, but also for the admirable manner in which the monotony of the too common flat surfaces of ordinary beds are relieved by them.—EDWARD LUCKHURST.

A WEEK IN YORKSHIRE.—No. 4.

FERNIEHURST.

AFTER visiting Mr. Holden's remarkable garden at Oakworth, an agreeable hour was spent at Ferniehurst, the pleasantly situated residence of Edward Salt, Esq. Mr. Salt's mansion is situated on a woody eminence, overlooking the town of Shipley and that monument of the success and liberality of the late Sir Titus Salt, Bart.—Saltaire. The approach to Ferniehurst is by walks and drives along the side of the hills, arranged so as to diminish the gradients and make the ascent as easy as possible. There is a great deal of the grandeur of Nature flanking these drives, abrupt banks and deep dells, with an undergrowth of Ferns and a wealth of forest trees. There are also some touches of art, appropriately gentle, for evergreens have been planted to give warmth in winter, and as the house is approached we pass through an avenue of Rhododendrons recently formed—fine shrubs thriving well of excellent varieties, as the names attached to them indicate. The

walks and drives are highly suitable for the undulated nature of the ground. They are of asphalt, but very different from asphalt walks as ordinarily made and understood. When the tar was hot the surface was closely covered with finely broken granite and well rolled: no tar is apparent, and the granite though quite level affords good foothold for man and horse. Anything more suitable for hilly ground than this mode of making roads and walks cannot well be imagined. They are firm, dry, level, and agreeable in appearance, comfortable to walk upon, and free from weeds. A striking feature of the place is the grass and the asphalt tennis grounds situated in a romantic dell—the grass for dry weather, and the asphalt for use when the lawn is damp. The asphalt is enclosed with wire fencing 12 feet high, and the surroundings are very beautiful—massive rocks and Ferns with a well-arranged rustic bridge used as a walk from which the lawn tennis ground is seen with great advantage.

The gardens are not extensive, but the results of attentive care and good culture are apparent throughout. Orchids are admirably grown at Ferniehurst, but the collection is not so extensive as formerly, or at least the specimens are not so large. No plants could be cleaner nor in better health than the Cattleyas, Dendrobiums, &c., in the principal house, while in the cool house the plants were in the same satisfactory condition. Among the Masdevallias were excellent examples of *M. bella*, *M. Davisi*, a foot across; *M. tovarensis*, growing vigorously; while several forms of *M. Harryana* and *M. Veitchiana* were very fine. *Epidendrum vitellinum majus* was healthy and brilliant, and three plants of *Oncidium zebrinum* had a spike each 12 feet long, bearing hundreds of richly marked flowers. *Odontoglossums* were numerous. Of *O. Uro-Skinneri* there was a grand variety flowering with glowing crimson sepals and a rosy purple lip; a finer variety is seldom seen. *O. macranthum* contributed to the beauty of the house by its large and richly coloured flowers. *O. Alexandræ*, *O. Pescatorei*, and *O. cirrhosum* were numerous and excellent, but as regards variety and condition, the pseudo-bulbs being of unusual size, and of that warm coppery brown colour indicative of good health and maturity of growth; while *Mesospinidium vulcanicum* attracted attention by its richly coloured flowers. *Coelogyne cristata* is admirably grown, some of the plants exceeding a yard in diameter.

In other houses *Lapagerias* were growing in wild luxuriance. These plants are evidently at home at Ferniehurst, and Mr. Culley appears able to "do anything" with them. Planted out and in pots they grow alike freely, and they are increased both by layers and cuttings with the greatest readiness. A spongy turfy soil, with charcoal and abundance of water, appear the chief means employed of growing them so well. The young shoots breaking through the soil resembled heads of Asparagus, and were protected from slugs by half-circular earthenware troughs containing water, two of which placed together encircle a shoot, and they can be removed at any time. Overhead the flowers were numerous and grand. A fine plant of *L. alba* was sent from Ferniehurst to Milner Field, Mr. Titus Salt's residence, where the splendid flowers were produced that Mr. Anderson, the gardener, sent to South Kensington on August the 10th. One of Mr. Titus Salt's plants, I was credibly informed, covers the roof of a house about 40 feet long, and as many as four thousand flowers were expanded at one time this season. I regret I was unable to see this splendid sight, and what is believed to be the best plant of the white *Lapageria* in the kingdom. *Eucharis* and *Paneratiums* are admirably grown at Ferniehurst—huge plants in vigorous health. Equally fine are several specimens of *Anthurium Scherzerianum*, which produce between two and three hundred spathes each. Tuberous *Begonias* were extremely large and fine; the variety *Queen of the Whites* being found particularly useful, and some seedlings of it have proved as pure white as the parent. Small pots for the size of the plants and abundant supplies of water contribute to such good results.

In a small grotto-like fernery were some remarkable examples of *Lilium auratum*, the dwarfest plants with the largest flowers I have ever seen, and I have seen many thousands. The bulbs were imported last year and grown in very small ornamental glazed Japanese pots. The effect of these *Liliums* associated with the Ferns was excellent.

The Peach house is worthy of notice alike for its construction and the admirable condition of the trees. It is a span-roofed structure, and instead of the trees being planted close to the sides of the house they are planted 3 or 4 feet from it, and room is afforded for a flat stage close to the glass, and where Tomatoes and plants can be well grown, as they receive abundance of light. There is room also for a narrow path for attending to the plants. The house is lofty, and the trees are standards; they bear fruit of the first size and quality, and no red spider. In this house

some pans 2 feet in diameter filled with *Tritonia aurea* were remarkably fine; the bulbs appeared to have been packed together as closely as possible, and the effect of the rich masses of flowers was extremely good. I never before saw *Tritonias* nearly so effective.

Narrow pits are devoted to the growth of Figs and Melons—Figs on one side and Melons on the other. Negro Largo Fig was remarkably fine. Another pit contained Cucumbers on one side and Tomatoes on the other, while others were accommodating Vegetable Marrows and Dwarf Kidney Beans, which in this cold district have to be grown under glass. There are also some large vineries, and the crops of Grapes were very heavy, it being necessary to obtain as many bunches as possible for the requirements of the family. Mr. Culley is unquestionably a skilled gardener and industrious, or the plants, fruit, and gardens generally could not be maintained in such good condition.—A RAMBLER.

REMOVING AND REPLANTING OLD VINES.

IN order to dispel all anxiety respecting removing old Vines that are not succeeding so well as may be desired, I will relate the success of one that was removed under the most disadvantageous circumstances. A large estate having been sold for building upon, the workmen were engaged in taking down a vinery, in which the Vines had a very fair crop of Grapes about the size of Peas. The stems were severed about 3 feet from the ground, and the sap ran out in such profusion that the soil appeared as if water had been poured upon it. One of the men picked up a Vine with about a foot of thick root and a few fibres; I took this and planted it, for experiment, in one of my plant houses, without any preparation of border, the soil being light on gravel. The stem started into growth and made several good shoots the same season. The following year it grew vigorously; the third, it bore a fair crop of Grapes; and the fourth it had nearly filled the house, and produced over five hundred bunches. It continued to grow very freely, and produced a full crop every year. The house was 30 feet long—much too small for it, and I was very much inclined to lead it into an adjoining house. The variety was unnamed, but was a good and useful one. The bunches were of moderate size, berries roundish, rich amber colour when ripe, and possessed a rich, sweet, musky flavour.—R. C.

FANCY PANSIES.—No. 1.

THESE once-despised flowers have so rapidly increased in public favour as to now require no apologist. Their beauty and variety, their free blooming and rapid growth, their hardiness and easy culture, have been the passports that have carried them to a high place in the estimation of all who have given them a tithe of the attention they deserve. Florists of the good old school have hesitated and been lost. Four or five years ago judges, whose eyes and minds were filled with Roses and other more pretentious and fashionable flowers, were wont to pass by boxes of beautiful but unorthodox Pansies with the contemptuous remark, "A mongrel lot!" or with the singularly inapplicable designation, "Belgians!" Yet everyone liked, and likes, the flower, but their special attention has to be in a measure forced before they will take the trouble to minutely examine them. I have a friend who is a rosarian and orchidist; he will talk for a month about his favourites, do anything for them—get up in the middle of the night to make sure that he has latched the Orchid-house door, or protected from imminent rain a light Rose he intends showing on the morrow. Why, I have actually kept watch and ward with him through a short summer's night to protect the queen of flowers from the molestation of midnight marauders who were a good bloom or two short, or who were wishful of a dark Rose or a light to give variety to their box. But no foster-parent is he of the Pansy. Any that are given to him he plants in his stiff soil, rank with Rose food, and then leaves them to their fate—a hapless one. Yet he is enthusiastic in his admiration of them, and is no mean judge of their true merits. Perhaps this seeming indifference is a wise disposition of power. The best results follow an intelligent specialist—he aims at perfection, and generally succeeds to a certain extent.

That fancy Pansies have a bright future is as certain as that show Pansies have had a glorious past. "Your fancy Pansies are really magnificent," was the involuntary admission of Mr. Rabone, the skilful custodian of Alton Towers, "the fairy land of Staffordshire," when he was acting as Judge at the Stone Show in July last. The remark applied to a display of thirty-six varieties, staged for a special prize, for even there there is no open class for Pansies. However, they shared honours with the

new Rose Mrs. T. Jowitt, which is a Staffordshire Rose, by the way, having been raised at Newcastle, and this tribute to their beauty and variety from one who revels in all that is good and orthodox is borne out by the increasing demand. In a conversation a few weeks ago with Mr. W. M. Welsh, one of the firm of Messrs. Dicksons & Co. of Edinburgh, who have for many years had a well-deserved fame for Pansies and Violas, he said the demand in Scotland was three times as great for fancies as for shows; and I have good reason for knowing that his experience tallies with that of Messrs. Downie & Laird, and of Mr. Paul of Paisley, and these are giants of the Pansy world, and raisers of a very large majority of the really good varieties now in cultivation. "Depend upon it," wrote the latter about twelve months ago, "fancy Pansies are the Pansies of the future, not only for exhibition purposes but for general bedding," and I believe he is right. Stand by the boxes at a show and listen to the remarks of the visitors. It will be found that those which attract most attention are the fancy varieties, with their crimson and black, amaranth and primrose, scarlet and white, chocolate and yellow, cardinal and straw, indigo and magenta, mulberry and fawn, pink and lemon, lilac and orange, and a hundred other combinations of charming hues. This admiration, of course, is reflected in the demand, and consequently nurserymen propagate extensively of those most marketable, and sparingly of those for which there is but little sale. To be sold out of fancies and to have a large stock of shows is a state of affairs decidedly uncommercial, and will be speedily remedied by many of the show varieties being allowed to go out of cultivation. I was not a little delighted, about three months ago, when Mr. Mawley of the National Rose Society paid me the honour of a visit, that he carried away to his southern home a few fancies in preference to shows. But it is always so now. "With the exception of one or two really good dark selfs don't send me any of the old sorts," may be accepted as a fairly accurate representation of the radical change that has taken place.

I disclaim any idea of disparaging show varieties; I love them much, but the fancies more. The former have seen their day for the present, and the latter are well to the front. May they occupy their present position as long and as worthily as their predecessors.—M. H. MILLER, *Leek*.

NOTES ON BIRDS.

It will not require a very "learned" contributor to the Journal to answer the questions of "A. M. B." on page 389 as to the colour of the bill of the blackbird. The colour varies according to the age of the bird and also in the sexes, the hen never attaining the brilliant golden hue of the bill—so far as I have observed—but what is best described by the "orange tawny bill." The bill of the male bird varies according to its age until about twelve months old. When the bird is fully fledged its bill is a dark shade inclining to black, but becomes blacker until about six months old, when it is gradually streaked and mottled with orange, becoming by degrees a fine golden yellow in the winter. I was interested to-day (November 1st) in watching no less than five male blackbirds (not one of which had a yellow bill, although the old birds about have) under one Pear tree in my orchard turning over manure which had been applied a short time ago as a top-dressing, and on driving them away and examining the manure I found it contained an immense quantity of grubs or maggots, which the birds were feasting upon.

In the interesting communication of "A SURREY PHYSICIAN," page 398, I notice he remarks the swallows did not leave until the 21st October. I referred to my diary of dates of arrival and departure of the birds of passage, and find the swallows finally left here on the 15th of October, and house martins on October 16th. The latter birds have been unusually scarce with me this year, and in other places I have noticed the great decrease. On the front of one house I counted thirty-three nests, and this year there were only five. Last year I had just a dozen pairs round these premises, this year only three pairs. This is very strange, as there must have been nearly one hundred young reared last season. It is a pity people will not give themselves a little trouble to fix up a piece of board about a foot square under the nest to prevent the dung from a martin's nest becoming a nuisance, from which cause thousands of these useful and innocent birds are destroyed by having their nests knocked down by thoughtless people, instead of using every means to encourage and protect them. I could not help noticing one case in particular at Stratford-on-Avon when visiting the poultry and dog show on the 12th of October. A late brood of martins were still in their nest, which attracted my attention about opposite Shakespeare's birth-place, and turning to look I observed them directly over a bust

of the bard, who had been subjected to a continual shower of digested insects until he was hardly recognisable; whereas, a picce of board as above described would have prevented such shameful treatment.

Bullfinches are unusually plentiful this autumn; so, gardeners, look out for them now! And if endowed with a little patience, catch them instead of wasting powder and shot and spoiling your fruit trees in the spring when they attack the buds. Redwings and fieldfares are here in large flocks earlier than usual, but they find the hedges very short of provisions so far as haws are concerned, not one to be seen in a ten-mile walk, or even a berry on the Holly trees, for food for birds or Christmas decorations. The hews are not ripe, and so the birds have to betake themselves to pastures and pick up such food as they generally have to put up with after clearing off the berries.—J. HAM, *The Wren's Nest, Ashwood Bank, Worcestershire.*

NERIUM OLEANDER ELEGANS.

THE following few additional particulars in reference to this beautiful flowering plant (*vide* page 388) may have an interest for some readers, which I take by permission from a letter just received from the respected Curator of the Trinity College Botanic Gardens, Dublin, Mr. F. W. Burbidge. "When I paid my first visit to Paris some ten years ago my eyes were opened as to the capabilities of the Oleander. In the Halles Centrales I saw them in 5-inch pots, such as Pelargoniums are grown for Covent Garden Market, quite as dwarf and floriferous. Then there were so many shades of colour—white, blush, pink, and numberless shades of rose until a fiery crimson was reached; while the salmon and buff shades were exquisite, single as well as double. Outside the cafés and restaurants, particularly in the Champs Elysses, Rue Rivoli, &c., were large bushes of the old type, bearing gorgeous masses of rosy flowers. I came home with the impression that nowhere in the world could the Oleander be more beautiful than at Paris. Later, however, I saw them in Egypt with literally more flowers than leaves, while their fragrance rivalled that of the Roses. How they seemed to love the dry air and the blazing sun! At Kantarah, one of the Suez Canal stations, about thirty miles from Port Said, they perfume the whole place, and with big Arundos (Reeds) and fresh green Poplars make a refreshing oasis in a sea of dull red sand. I wonder, and have long wondered, why our florists and nursery gardeners do not grow them in small pots in the open sunshine. I hope shortly to put in practice an old resolve of mine, to see what may be done with the Oleander in small pots for autumn decoration when such flowers are proverbially scarce. Mr. Wills, I have heard, is successful in this way with a pure white variety, which he uses for bouquet and ceremonial purposes. I placed some cuttings of the double Pink Oleander in bottles for the Colonial Surgeon of Labuan in Borneo, when out there, and they rooted and flowered in ten weeks; but then this was under the equator, and with a temperature of 85°."—W. J. M., *Clonmel.*

FUNGI A RESULT, NOT A CAUSE OF DISEASE.

WILL my statement of results in dealing with Peach blister have any more weight with "C. P. P.," if I assure him that the positive cure of that disease is not confined to the Dr. Hogg tree? The Peach house is 130 feet long and contains the Dr. Hogg, two trees of Early Beatrice, and one of each of Rivers' Early York, Grosse Mignonne, Noblesse, and Barrington, all fan-trained upon the wall, all perfectly healthy, vigorous, and fruitful. All were affected more or less with blister every spring before the house was erected over them, and all have since been quite free from blister. These are not mere toy trees, but cover the entire length of wall, the Barrington covering 250 square feet of space, so that the trial is on a sufficiently large scale to be valuable. The lesson clearly demonstrated here is, that an unheated glass structure gives immunity from blister provided due care is taken with the ventilators during the prevalence of cold north-eastern wind in spring. It has done so for me for four consecutive years in this particular instance, and I may very confidently recommend the plan to the notice of your readers. If, as "S." asserts, well-ripened wood is a remedy for blister, why is it that trees growing here against a south wall with very little shelter from the east are almost invariably badly blistered in spring, while others upon another south wall having the shelter of coping boards and an east wall are only slightly affected by blister near the east wall, but show more and more blistered foliage the farther they are away from it, the tree at the west end of this particular wall having been twice almost killed by it? These are facts which I cannot ignore; and if upon the face of them I were to tell your readers that ripe wood was a remedy for disease, or that fungi was the cause of it, should not I then be "propagating errors?"

Evidently my assertion that what I have termed plague spots appear upon the Potato leaf before the spores of the fungus vegetates, is that to which my opponents take particular exception. After careful consideration I have come to the conclusion that here I am probably wrong, and may usefully so far modify my original statement by saying that in the Potato disease fungi is a result of decay. "Hence, then," they will say, "you agree that in the Potato at any rate fungi are the cause of disease?" Yes, I will concede so much. But let not "S." or "C. P. P." suppose that I can possibly think them right when they assert that they have perceived the presence of disease in the foliage before growth in the tuber has ceased. Like them I have seen diseased foliage before the tubers have attained their normal growth, but then I have always found that growth checked by ungenial weather, and once checked it never goes on again. There may be, and too often is, a subsequent lateral growth in the foliage and sprouting of the tubers, but that is a mischievous and wasteful growth, which may be classed with disease and avoided by early lifting.

What has been my motive in writing so much about the Potato and its disease? It is to induce your readers to lift the crop as soon as growth has ceased, and so altogether avoid the ravages of a disease for which there is no cure. Although I have been unsuccessful in persuading the slowcoaches to do this, yet I am glad to say many keen practical men have adopted the plan, and have been good enough to write me accounts of their success. My especial landmark that has stood me in good stead for so many years in this matter is the immunity of the plant from blight till there is a cessation of growth. It is a safe and sure guide that has never failed me. Let me now inquire what is the motive of "S." in this discussion? Granting him to be right in thinking fungi alone cause the disease, has he any remedy to propose? or can he point to storerooms full of sound Potatoes and thus give us tangible proof that he is a safe leader to follow? I may have blundered in my ideas about the disease, but I have saved the crop, and would rather have to acknowledge myself wrong in theory than in practice. Surely "S." will not attempt to deny that fungi is the result of decay. The common sight of fungi growing freely upon putrid meat, upon the bark of dead timber, upon rotten fruit and decaying vegetation generally, is sufficient proof of this; and although the Potato leaf is green, when disease attacks it its work is done, and it has begun to die, for that is the term used by the physiologist in speaking of the decay which ends in death.—EDWARD LUCKHURST.

[Our correspondent "S." stated last week that a "desire that doubtful statements should not go unanswered" induced him to enter on this discussion.—EDS.]

THE CONSERVATORY IN NOVEMBER.

AT no period of the year is the conservatory more enjoyable than during the months of November and December, consequently a few remarks upon the plants that may be employed in it at this time will be acceptable to some of your readers. Chrysanthemums will now be contributing largely to its brightness, and it is therefore advisable to ventilate night and day to prevent the plants being attacked by mildew; should it appear, however, dust the stems and leaves with flowers of sulphur. The objection to the use of much water in this structure often causes the flowers to suffer in size and also in duration, as they really need abundance of moisture. Epiphyllums make an imposing display, and may safely be placed in the conservatory whilst flowering. They are exceedingly effective for brackets or suspended baskets lined with moss so as to hide the pots; but they must not be overwatered or the roots will perish, nor must they be allowed to remain in the house too long or they will not do well afterwards. Primulas are very useful; and with Cyclamens and other dwarf plants should be placed in the lightest positions. Correas, Epacrises, and winter-flowering Heaths suffer little from a sojourn in the conservatory during their flowering, provided they have plenty of space, light, and air. *Salvia gesneriiflora*, *S. Heeri*, and *S. splendens* are brilliant in colour and will do good service; but do not overcrowd them, as is often done, for such arrangements are not more telling, whilst the duration is shortened and the injury to the plants is permanent. Early-flowered *Cinerarias* are also bright. *Schizostylis coccinea*, with its Iris-like foliage and spikes of deep crimson flowers produced successively over a long period, and the white *Anemone japonica alba*, are indispensable. Good specimens of *Helleborus orientalis* are valuable, and the buds of *H. niger* and *maximus* are very pleasing.

Those already enumerated may be supplemented by flowering plants from the stove and Orchid houses occasionally, and will

make a very effective display. They do not suffer if they have been previously inured to a somewhat cooler and drier atmosphere.

Fragrant flowers must not be forgotten. Standard Heliotropes as well as bushes are always esteemed; a few pots of Violets will perfume a large house; and then there are Roman Hyacinths, Roman and Paper White Narcissuses, Lily of the Valley, and Roses. Well-berried plants of Solanums can be effectively employed. Climbers, such as Lapagerias and Tacsonias, will aid, but other vigorous roof climbers should now be pruned freely, so as to give as much light as possible to the plants underneath, as too much light can hardly be admitted even to flowering plants during the dull winter months. Neatness, tasteful arrangement, and variation in the material as regards position will do much to render even common plants attractive, and a little care in these matters is well repaid.—G. A. G.

ANEMONES.—No. 2.

SOME of the most attractive Anemones have been already briefly described, but I have by no means exhausted the list of those really worthy of a place in gardens. The following I have proved to possess merit of no ordinary degree, and as such I recommend them to the attention of all who admire and grow hardy plants. The notes will also be opportune, as the present is a good time for planting these flowers.

A. narcissiflora.—A very little known species, or it assuredly would be more grown. It is about 12 to 18 inches in height, producing in May a profusion of its umbels of beautiful snow-white flowers upwards of an inch in diameter. The root leaves are palmate, the segments being deeply toothed. The scape is erect,



Fig. 80.—*Anemone stellata fulgens*.

and bears an umbel of pure white and very showy flowers. May. Alps of Europe.

A. palmata.—This is a totally distinct species, and one of great beauty. It is a true Alpine, and should be placed on some flat piece of jutting rock, where the soil is both deep and rich. In such spots it will form fine clumps. It is usually about 8 or 9 inches high. The leaves are reniform, scarcely rising off the ground. The flowers large, nearly 2 inches in diameter, and golden yellow in colour. May. Native of the high mountains of Spain and North Africa. *A. palmata alba* differs only in the flowers being pure white.

A. pavonina fl.-pl.—It is remarkable that this plant, although common in the gardens of many parts of Europe, should yet be so very little known in England. The plant reaches a height of 6 to 9 inches. The flowers are borne well above the foliage, very double, and bright orange scarlet. A very showy plant. April, May, and June. South Europe.

A. Pulsatilla.—This species, which is found in some gardens under the name of *Pulsatilla vulgaris*, is distributed nearly all over Europe, and our own island also, though at the present time it is extremely rare in a wild state. Under cultivation it attains a height of 9 to 12 inches. Leaves pinnate; segments much divided into narrow lobes, which are densely hairy. Flowers slightly nodding, solitary, rich purple, clothed on the outside with long light-coloured silky hairs. It blooms from March to May. Europe (Britain).

A. ranunculoides.—Some few localities are recorded where this



Fig. 81.—*Anemone sylvestris*.

species is found growing in Britain, apparently wild, but there can be little doubt of its being only naturalised, and not indigenous. It resembles *A. nemorosa*, but its flowers are golden yellow instead of white. The plant seldom exceeds 5 to 6 inches in height, and should be grown in a chalky soil. March to May. Europe.

A. Robinsoniana.—This charming plant attains a height of from 8 to 12 inches. Leaves ternate, deep green. Flowers large, upwards of 1½ inch in diameter, bright azure blue. It should find a place in every garden where spring flowers are grown.

A. stellata.—This species has been long cultivated as a florists' flower, and the numerous varieties with their red, rose, or purple star-like flowers are beautiful spring decorators. They are scarcely so hardy as the varieties of *A. coronaria*, and therefore in severe weather should be protected by a little dry bracken or ling, each of which affords excellent protection for choice hardy plants, and do not present an untidy appearance. Neither do they like a heavy soil, light sandy loam suits them best. The flowers are nearly 2 inches in diameter and spreading, very variable in colour, but usually amethyst-purple. This and its varieties are often sold under the name of *A. hortensis*. April and May. South of Europe.

A. stellata fulgens (fig. 80).—This beautiful plant is found in a wild state in the mountains of Greece, and is perfectly hardy, the brilliant colour of its flowers rendering it one of the most conspicuous objects in the spring garden. In general appearance and habit of growth it resembles the species, but the flowers are of a uniform dazzling vermilion scarlet, the large tuft of black stamens at the base adding materially to its beauty. April and May. Greece and various parts of southern Europe.

A. sylvestris (fig. 81).—A charming early-flowering species, attaining a height of 1 to 2 feet, alike suitable for the border or rockery, and also grouping beautifully with others in the wild garden. Flowers large, pure white; before opening they are pendulous, which has earned for it the name of Snowdrop Anemone or Windflower. April and May. Germany, France, Northern Italy.

A. trifoliata.—This is a dwarf-growing plant seldom exceeding 6 inches in diameter. It somewhat resembles the Wood Anemone, *A. nemorosa*. Flowers pure white. April and May. Italian Alps.

A. vernalis.—A charming species, dwarf in habit but producing

very large flowers, which are white within, the exterior being tinged with purple and clothed with long brown silky hairs. Indeed, being a near relative of *A. Pulsatilla*, it possesses something of the peculiar hoariness which is characteristic of that species. It should be placed in some open spot in the rockery, where it has a good deep soil. April and May. Alps of Switzerland, and also the mountains of Norway and Sweden.—H.

THE POTATO DISEASE.

I AM sorry I have been unable to reply earlier to "AMATEUR'S" remarks. His request that I should account for the first appearance of the disease in 1846 is not reasonable. His view is that unless I can make my theory fit in with the facts of 1846 I am wrong. This is not good logic. My theory may fit all the facts, but if I do not know them I cannot use them. I hold that a firm grasp of all the facts is absolutely necessary to a sound conclusion; and because I believe there is an aspect of this most important question which has not had sufficient investigation, I write with the hope that some of the able men who read my remarks and who have the means of closely investigating them by observation and experiment will do so and give us the results. My own appliances and time are very limited.

I earnestly beg the closer attention of your very able correspondent "S." He has evidently missed my point. He has given us a lucid description of the normal conditions of circulation and evaporation of the plant, and his reasonings are based on these, hence they are inapplicable to my statement. My statement is that the disease is caused by the abnormal conditions of circulation and evaporation; in fact it is due to stagnation. The densely saturated atmosphere prevents evaporation and consequently circulation. More than this, the tissues and cells are gorged to bursting, disorganisation, or death, by a vapour bath continued too long. Portions of the plants are now disabled, and are successfully attacked by the fungus. Will "S." kindly master this view and let us have his opinion upon it? Practically we shall have gained a great deal by these papers if we can show the advantages of wide planting and employing means to dispose of the excessive wet.—AN INTERLOPER.



THE following books are missing from the LINDLEY LIBRARY, and of which no entry appears in the loan book—Brande's "Forest Flora;" Darwin's "Origin of Species," 6th ed.; De Candolle's "Memoirs et Souvenirs," 1862; Gray and Doehard's "Travels in W. Africa;" Hooker's "Flora of British India," Part 4; Humboldt, "De Distributione Geographica Plantarum," 1817; Lindsay's "Popular History of British Lichens;" Lowe's "Manual of the Flora of Madeira;" Neill's "Fruit and Flower Garden;" Matthew "On Naval Timber;" "Annales des Sciences Naturelles," 6me ser., tom. iii., 1876. Whoever may have any one or more of the above works in his possession is requested to return such at once to the Secretary of the Royal Horticultural Society, South Kensington.

— MR. SAM AINSWORTH sends us the following note on *GLADIOLUS NATALENSIS*:—"In your issue of the 4th inst. a correspondent writes an article upon the *Gladiolus*, but he has omitted an important form, *G. natalensis*, which was in commerce at about the same time as *G. byzantinus*, and I believe the forerunner if not the progenitor of *G. gandavensis*, the colours and growth being similar, only inferior in brilliancy to the first named."

— THE specimen at Kew of that rare but attractive tree *PARROTIA PERSICA* is now assuming the rich crimson tints which distinguish its foliage in late autumn when trained against a wall similarly to the specimen referred to. It is curious that when in the open the leaves fall comparatively early, and thus the tree loses its chief beauty. The first engraving of the *Parrotia persica*

appeared in the "Botanical Magazine," where the fine tints of the foliage with the bright crimson anthers of the flower are well shown. Dr. Hooker in describing it states that "it is one of the rarest trees in cultivation." Two plants, of which this is one, were sent to Kew from St. Petersburg about forty years ago, and it is surprising that it has not become more common. It is an ally of the *Liquidambar*, and is a native of the northern parts of Persia. It is quite hardy at Kew.

— IN the greenhouse at Holme Lacy there are now some fine plants of *SCHIZOSTYLIS COCCINEA*. The plants are grown in 9-inch pots, each of which supports from twelve to fourteen spikes. These brilliant masses mixed with other winter-flowering plants render the house very gay.

— A CORRESPONDENT states that *BOUVARDIA BRIDAL WREATH* is one of the best of winter-flowering varieties he is acquainted with. Its large trusses of white flowers, together with its free-flowering and compact habit, should make it a favourite of all lovers of white flowers.

— OUR correspondent "G. O. S." sends us the following amusing definition of ARTIFICIAL MANURE:—"One day this week our village schoolmaster, examining a reading class, asked the head of the class, What is artificial manure? 'Don't know,' said he, and the same reply was given by four other boys; but a precocious youngster, not yet in his teens, was equal to the occasion, and said, 'Please sir, it's the stuff they grow artificial flowers in!'"

— MESSRS. SUTTON & SONS of Reading have sent us some plants of their improved strain of *CYCLAMEN PERSICUM*, to show what can be done in about twelve months after the sowing of the seed. The plants are the result of seed sown on October 20th last year, and are, we are assured, a fair example of thousands now growing in their nursery, every plant of which is showing from fifty to a hundred flowers. The plants are not more remarkable for their fine flowers than for their thick, massive, and marbled foliage. They represent an excellent strain admirably cultivated.

— WRITING respecting the shrub *ARISTOTELIA MACQUI VARIEGATA*, our Clonmel correspondent states that there was a fine specimen in the grounds attached to Minella House that is now quite dead, though it survived the winter of 1878. "Both the soil, situation, and shelter were in its favour, and I should like to know if the shrub has survived elsewhere."

— WE have received information of the following GARDENING APPOINTMENTS:—Mr. Quintin Read, late of Pleasley Vale Gardens, Mansfield, has been appointed gardener to Frederick Mappin, Esq., M.P., Thornbury, Sheffield; Mr. W. Jordan, late gardener to J. Boustead, Esq., Cannizaro House, Wimbledon, has been appointed gardener to J. H. Nix, Esq., Silgate, Crawley, Sussex; and Mr. Peter Conway has succeeded Mr. Beach as gardener to the Marchioness of Bath, Muntham Court, Worthing.

— MR. LEE of Clevedon has sent a truss of his SEEDLING *ASTER*, referred to and figured on page 325 of our issue of October 7th, to show its continuous flowering habit. The truss is very fresh and fine, superior to the spray figured on the page indicated.

— A HANDSOME Conifer that is comparatively rare in gardens is *ABIES SMITHIANA*, of which there are several good though not large specimens at Kew. It is noticeable chiefly for the pendulous young growths, which impart a very graceful appearance to the tree. It is said to attain a height of 150 feet in its native localities in the Himalayas, where it is found at elevations of 7000 to 12,000 feet above sea level. It is known in some districts as *Morinda*, a native word signifying the nectar of flowers, an

appellation referring to the exudations of resin that are found upon the young cones.

— A GRACEFUL and distinct Fern is *ASPLENIUM CICUTARIUM*, with elegantly divided fronds somewhat triangular in outline, the pinnules being very neatly and regularly cut. It is a West Indian species and requires a stove temperature, but is otherwise easily grown.

— IN the current number of the *Journal of Forestry* is published an excellent portrait of Mr. WILLIAM M'CORQUODALE, the well-known forester at Scone, who was presented by the Scottish Arboricultural Society with a handsome testimonial on October the 5th as "a mark of respect and esteem on his attaining the fiftieth anniversary of his career as a practical forester." The testimonial comprised a gold watch and a purse of one hundred sovereigns, with a brooch for Mrs. M'Corquodale.

— AT the ordinary meeting of the METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 17th instant, at 7 P.M., the following papers will be read:—"Table of Relative Humidity," by Edward E. Dymond, F.M.S.; "Rainfall in South Africa," by John G. Gamble, M.A., M.Inst.C.E., F.M.S.; "The Meteorology of Mackay, Queensland," by Henry L. Roth; "Thermometrical Observations on Board Ship," by Captain W. F. Caborne, F.M.S.

— IN reference to the rapidly increasing importance of THE FRUIT CROP OF THE UNITED STATES the following facts concerning the fruit farm of Robt. McKinstry, of Hudson, N.Y., will be instructive. His orchard contains about 33,000 trees, chiefly Apples, and he exports nearly 20,000 barrels of the latter fruit every year. Besides Apples and Pears he grows Cherries to a large extent, which are chiefly sold in the New York market at prices ranging from 7 to 18 cents a pound. Some of the Apples weigh 1 lb. each, and testify at once to the remarkable fertility of the soil and the skill of the cultivator.

— IN reply to the Rev. A. Fitch relative to the ORIGIN OF THE LAPSTONE KIDNEY POTATO, a correspondent obligingly directs attention to the following letter, which we reproduce from vol. xxv. of this Journal—

"Bramham, near Tadcaster, May 22nd, 1866.

"I, Joseph Hague, in the year 1827, then residing at Thorner near Leeds, planted two pecks of Potatoes, which I had sent me from Clap Gate near Harewood. These Potatoes produced an extraordinary quantity of fine berries, which induced me to try to raise seedlings from them. In that I succeeded, and selecting the two best from among the quantity I again planted the seedling tubers, but subsequently removed to Bramham, where I now reside. Having no garden connected with the house I then occupied, I took my seedlings over to Bardsey, and they were planted in my father's garden; and as he was the first to propagate them the general impression was, and is now, and is with many people to this day, that he raised them himself, but he never at any period of his life attempted to raise seedling Potatoes. I have five brothers who can all testify to the accuracy of the above statement. Mr. Fuller, florist, &c., Headingley near Leeds, but at the time gardener to G. Lane Fox, Esq., of Bramham Park, gave the Lapstone Kidney its name.—JOSEPH HAGUE."

Mr. Hague was a shoemaker, and was commonly called "Major" Hague. He died in 1850. His name is generally spelled and printed Haigh, but we presume incorrectly.

— THE same correspondent also gives a reference to the ORIGIN OF RIVERS' ROYAL ASHLEAF KIDNEY on page 173, vol. xx., where it is stated by "D., Deal," as being "probably a selected strain of Myatt's Prolific, raised by J. Ashwin, Esq.; and Mr. Rivers having carefully grown and selected the stock, it is now better known as Rivers' Royal Ashleaf." In 1870, page 124, vol. xviii., Mr. Rivers, in disclaiming the right of his name being attached to this Potato, gives the following as its history—"Some year or two prior to 1860 I was on a visit to the late James Ashwin, Esq., at Bretforten Hall near Evesham, who was an enthusiast in horticulture and agriculture. On passing by some Potatoes he

asked me if I had ever raised any seedlings in the course of my practice, and added that those I saw at our feet were seedlings raised from the old Ashleaf, and that they might prove of value. He had distinguished them as A, B, and C, and told me I was welcome to some tubers: these I received in the autumn. I found A was quite a curiosity, a true Ashleaf in miniature, not growing more than 6 or 7 inches high, and bearing a cluster of beautiful tubers. In the wet summer of 1860 this charming variety perished from the disease. B and C proved most robust and distinct, and one day attracted the notice of Mr. John Spencer of Bowood, who was walking with me. I at once called a workman to examine their roots, as they looked so promising. The end of it was our decision in favour of B, as the tubers were more regular in shape than those of C (I am quoting from memory). B was accordingly selected as a good Potato; and as Mr. Ashwin was deceased I decided to call it the Royal Ashleaf, fearing that the relatives of Mr. Ashwin might object to the prefix of his name."

RAISING GLADIOLI FROM SEED.

I AM sure Mr. Slater will not accuse me of captiousness if I venture to dispute the advice given by him as to raising seedling varieties of this beautiful autumn flower. He gives a list of varieties from which he advises seed to be saved. Now, there are only two of these that I would grow in my garden—Meyerbeer and Madame Furtado: the former still one of the most beautiful, although not so large as some of more recent introduction; and the latter I shall probably after this season discard. The fact is, that so great has been the improvement made both by Mons. Souchet and Mr. Kelway that the older varieties have been surpassed, and as Mr. Slater has discontinued their culture for some years he has not, of course, kept pace with the novelties that have been introduced. As I hope to give some fuller notes by-and-by before it will be necessary to purchase corms, I would merely say now that such varieties as Adolphe Brongniart, Horace Vernet, Baroness Burdett Coutts, Le Vesuve, Ovide, and Pygmalion would be much more likely to give satisfactory results than those which Mr. Slater recommends.—D., Deal.

THE NEWTON NURSERIES.

HORTICULTURISTS can scarcely pay a visit to the ancient city of Chester without inspecting the old-established nurseries of Messrs. James Dickson & Sons, which is situated close to the railway station, and can be reached in ten minutes' walk from the principal passenger station, and also in a few minutes from the Northgate Street station.

The main entrance to the nurseries for visitors is from Brook Lane by a broad and well-kept drive tastefully planted on each side with Gold, Silver, and green Hollies, which form a beautiful ribbon border with a background of Weeping Elms. The Hollies are most noticeable on account of their fine pyramidal shape and robust health. This main entrance leads to the offices, packing sheds, and glass houses. Before reaching them I was attracted by a large plot of Gladioli, which were in their best condition and very effective; numbers were also planted amongst choice ornamental shrubs. In the immediate vicinity of the offices the borders were gay with flowering and ornamental-foliage plants. I inspected the houses, and found a large collection of stove flowering and fine-foliage plants in robust health, all being in small pots. Small Palms are grown suitable for decoration, and for these Messrs. J. Dickson & Sons have a large sale. One house was devoted to Orchids, healthy and well-established specimens in 5 and 6-inch pots. Tree Ferns occupied a long house, principally *Dicksonia antarctica*, with a few plants of *D. squarrosa* and *Cyathea*, the former having noble trunks with a fine spread of fronds. Three or four houses were devoted to the cultivation of dwarf Ferns, all in excellent condition. Another house was filled with succulents in variety and of different sizes. Other houses were devoted to Heaths, Epacrises, Azaleas, and Camellias, as well as a general collection of greenhouse plants.

Vines in pots are largely grown, and about two thousand fruiting canes are annually prepared for sale. Frames and hand-lights are very numerous, as is necessary in nurseries of such magnitude, where Hollies, Rhododendrons, and other evergreen shrubs are propagated in such enormous numbers.

Near to the houses are the grounds appropriated to herbaceous and alpine plants, for which the nurseries are famous. The large stock of these plants both in pots and in the open ground alone

indicate that the demand is rapidly increasing. *Cypripedium spectabilis* grows luxuriantly in these grounds and proves quite hardy. These plants are in beds, and the crowns are covered with cocoa-nut fibre after the foliage has died, and in the severest weather mats or dried fern are thrown over the beds. The plants had made strong plump crowns, and a good supply of flowers may be anticipated another year. Good collections of Phloxes and Pentstemons are cultivated, and Irises are grown in great variety. The bulb ground must at times be very gay with the immense number of Lilioms and Narcissuses.

Passing to the large stock of Roses I noticed near a winding walk a large number of Clematises planted out for stock. Two plants of each variety are placed together and supported by large upright stakes when the plants are thoroughly established, and in flower they are very effective. Special attention is paid to Clematises, and a large stock is worked annually and grown for sale. The stock of Roses this year consists of 250,000, of which 60,000 are grown as standards and half-standards, and about the same quantity of dwarfs are grown upon the Manetti stock. Some 40,000 are worked upon the seedling Briar, and special varieties are selected for the purpose, such as *La France*, *Capitaine Christy*, and the Hybrid Teas; 20,000 Roses are upon their own roots. The soil in the Newton Nurseries is well adapted for Roses. They are planted in exposed situations, and no shelter whatever can be afforded. The plants make sturdy luxuriant growth, and are in excellent condition. Tea Roses are largely grown in 6 and 8-inch pots; the plants are grafted in the spring, and at the time of my visit they were free from mildew and in the most satisfactory health.

The fruit trees occupy about 15 acres, and a better grown stock it would be difficult to find. No time or trouble is spared to produce creditable specimens. The young trees are well balanced, whether trained in fan-shape, horizontally, or as pyramids. The large squares of pyramid Pears and Apples and their symmetrical shape indicate the attention that is bestowed upon them. The horizontally trained trees are equally good, and the large squares of fan-trained Cherries, Peaches, Apricots, and Plums are excellent. It is instructing to see the different effects the various stocks have upon the growth of the plants; this was especially noticeable in a number of maiden Plum trees on the English and French Paradise stocks and upon the Doucin stock, those upon the latter having made the strongest growth, while those upon the English had made the least.

The stock of forest trees is excessively large. About twenty millions of Larch are grown, varying in size from seedlings to strong plants 4 or 5 feet high. Sycamores are grown in large numbers, and I noticed some extraordinary seedlings that had made a growth of from 2 to 3 feet. The Sycamore is an admirable tree for planting by the seaside and in the vicinity of towns as well as in exposed situations, and it thrives in poor soil where many forest trees would die. Much attention is devoted to the forest department; and when Limes, Elms, Sycamores, Horse Chestnuts, and others attain a height of 5 or 6 feet they are planted in single rows and by the sides of the walks and drives, the result being strong stout stems and well-proportioned heads much better than if drawn up by one another as would be the case if planted together. Much ground in addition to better plants is saved by planting on the single row system. The trees are no detriment to the large flats of Larch and Firs that occupy the land close to them. Scotch Fir and Austrian Pines are grown at the rate of eight millions each, and twelve millions of Spruce Firs. The Corsican Pine is also very largely grown. About ten thousand *Cedrus Deodara* are grown from seedlings to well-developed specimens suitable for planting singly upon lawns or in the pleasure grounds, *Cupressus Lawsoniana* the same; and the choicer varieties, such as *C. erecta viridis*, *C. alba spica*, *C. lutea*, a beautiful Golden variety, and others, are well and largely grown. Yews, *Thuja*s, *Juniperus*, *Retinosporas*, are also extensively propagated. Hollies are another of the special features, and the stock consists of thousands, and the variety called *Hodginsi* is largely grown. It is much hardier than the common Holly, and is by far the best Holly for exposed situations and the neighbourhood of large towns, Gold and Silver varieties being very good. Standards are also grown with the stems 5 or 6 feet high, suitable for planting as single specimens. Both common and Portugal Laurels are largely grown, the stock being about 120,000 of the former and 60,000 of the latter. Noticeable were some good standard Portugal Laurels with beautiful round heads, suitable for planting upon terraces, where they are very effective. There is a large stock of *Rhododendron ponticum*, and an excellent collection of hybrids; about 6000 are annually grafted. Round-leaved Privet, *Spiræa salicifolia*, Broom, and *Berberis*es are grown in large numbers for planting as cover for game.

Amongst the Firs *Abies Douglasii* is largely grown, and a tall quick-growing Fir it is. Amongst *Piceas Nordmanniana* and *nobilis* are represented from seedlings to handsome specimens, also *Wellingtonia gigantea*; at the same time every new and rare kind is well grown and cared for.

The Nurseries are much exposed, and in consequence the occupants are not so likely to be damaged when planted in exposed situations, as is the case with hardy shrubs when raised in sheltered positions. Good practice in these nurseries is to allow each shrub as well as fruit tree ample room to develop into shapely specimens, which can never be the case when they are crowded together. A thorough system of lifting is practised with all plants that require it, and many are annually transplanted, especially after they attain a saleable size, so that the risk of lifting is reduced to a minimum. The enormous sale renders it necessary to move up the plants after the lifting season, or a large amount of land would be unoccupied, which does not appear to be the case in the Newton Nurseries. At the time of my visit the grounds were clean and in capital order. The large seed warehouse is in Eastgate Street, and the farm and implement warehouse close to it.—WM. BARDNEY.

ARCHING ROSES OVER WALKS.

WHEN pruning my standard Roses the winter before last I left two strong shoots on each of two trees, which were bent over and tied to a strong stake about 6 feet long on the opposite side of the walk. The result has been most satisfactory. Last season every joint or bud started and bloomed well. One was a *Gloire de Dijon*, and on this arch I counted at one time this summer sixty-four buds and blooms. The name of the other Rose I do not know, although it has been budded about five and twenty years, and the result of many inquiries, for the name only adds to the confusion, as I seldom obtain the same opinion from two individuals. Perhaps you could oblige me with the correct name, for which purpose I enclose a bunch of blooms. This has, perhaps, been more pleasing in the result of arching than the *Gloire*. At one time this summer I counted no less than 196 buds in different stages of development on a portion of the arch 4 feet in length, and at the present time there are over sixty buds looking very bright considering the severe frosts we have had.—J. HAM.

[The "bunch" sent is very fine, having sixteen buds and flowers. We showed it to Mr. William Paul, who recognised it as the old Bourbon Rose *Madame Desprez*.—EDS.]

THE CHAMPION POTATO AND ITS RAISER.

AT the present time, when the merits and demerits of this famous Potato are being so keenly canvassed in your Journal, it may not be out of place to put on record a short account of its origin and its probable effects on the future cultivation of our most indispensable root.

The history of the Champion can never be dissociated from the name of its raiser, Mr. John Nicoll, formerly gardener at Ochterlony in Forfarshire, and at present Superintendent of Arbroath Cemetery, where he has made his mark in the splendid way in which he has decorated and rendered attractive this city of the dead.

Mr. Nicoll, as his portrait will show, is a gentleman of mature years. His amiable and obliging disposition, and the unassuming way in which he has accepted the honours justly awarded him, are well known by all who have the pleasure of his acquaintance. Not so many, however, are aware of his extensive and accurate knowledge of the principles that have already issued in the production of at least one national benefit, and that promise to revolutionise the whole system of Potato cultivation in this country. To these principles I shall shortly advert. While others have usually been, in the production of new varieties of Potatoes, aiming at a type where form, colour, shortness of haulm, and in a less degree quality and prolificness, are the chief points, Mr. Nicoll has kept steadily in view a type that would withstand disease, yield large returns, and be of good nourishing quality. Those who criticise the Champion from a show point of view should bear this in mind, and remember that Mr. Nicoll's great aim has been the production of a profitable field rather than a garden variety. And if success in this and other lands has so undeniably indicated the Champion as "the poor man's Potato," it is safe to say that, spite of its shaggy growth and rough exterior, it may be hailed as the progenitor of a race the vigour and prolificness of which will enable us eventually to bid defiance to the dreaded disease.

The Champion was raised from seed gathered in 1862 from

three varieties of Potatoes planted with a view to hybridising. Mr. Nicoll does not now remember the names, but thinks they were seedlings raised by the late Mr. Paterson of Dundee. No particular care was taken to ensure a special cross, fertilisation having been left to natural means. Since then, however, Mr. Nicoll has taken the act of fertilisation into his own hands, and has now under trial a number of promising varieties of which the parentage is well known. The seed was sown at Ochterlony in 1863, and even the first year the produce was in some cases remarkably fine. Next year the collection of over one hundred sorts was planted with a view to selection, and the most

promising were reserved. For two years longer Mr. Nicoll continued to grow and select. In November, 1866, he left Ochterlony for his present situation, and from want of accommodation was reluctantly obliged to divide his collection among several of his farmer friends. One of these, Mr. Robertson of Newmill, Forfar, continued to grow and test the produce for a year or two with the result that one in particular so distinguished itself that it was given to the world under the name of Champion, and became a source of wealth to Mr. Robertson and not a few of the farmers of Forfarshire. An attempt was made, evidently under misapprehension, to deprive Mr. Nicoll of his just credit, but he is now

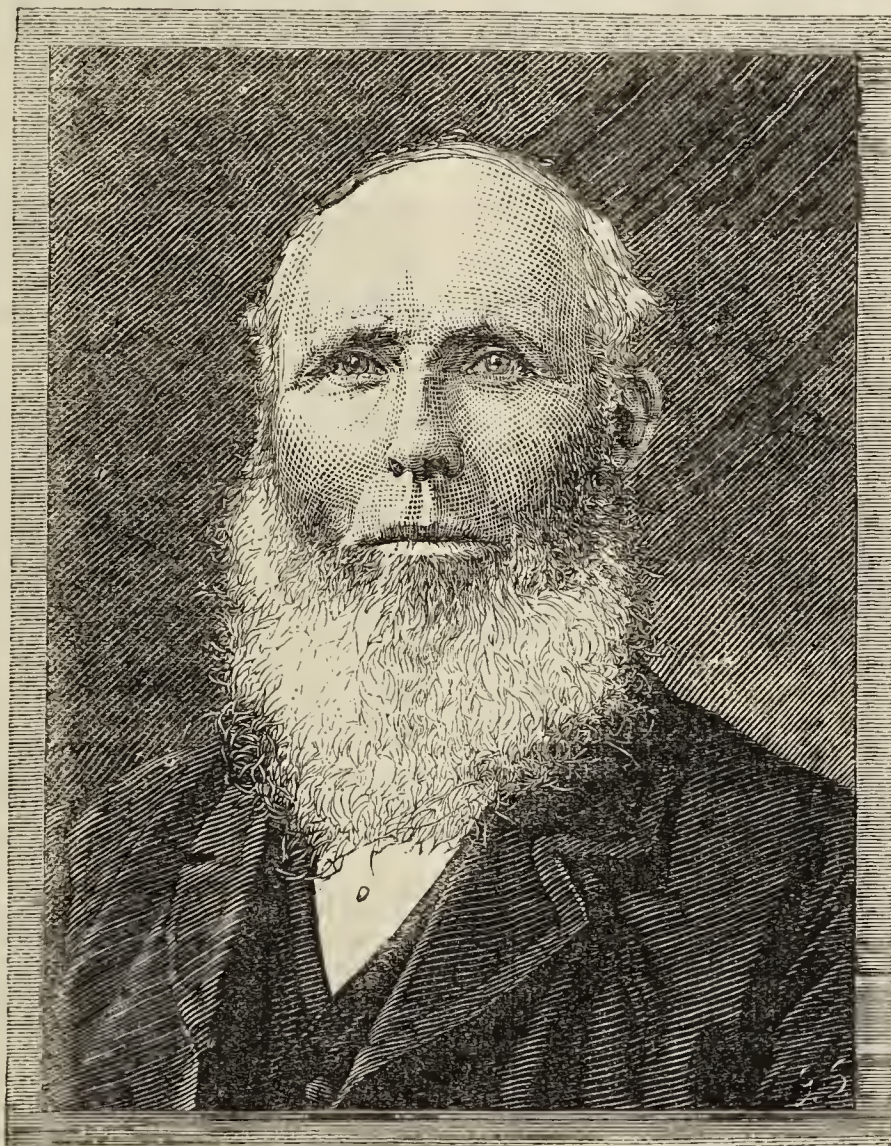


Fig. 82.—MR. JOHN NICOLL.

admitted to be the raiser of the Champion. Seeing that others had reaped the profits of what he had sown, it is not surprising that there were found among his friends souls generous enough to organise a testimonial in his honour, but it is surprising that the amount raised was so small—viz., a gold watch, a diamond ring for Mrs. Nicoll, and a purse of fifty sovereigns. This was, however, presented in January, 1879, before the Champion had earned its chief and recognised fame as useful food in times of famine, and before it was awarded a first-class certificate by the Royal Horticultural Society for its disease-resisting properties and good quality when exhibited by Messrs. Carter & Co. Had the testimonial been proposed a year later it would doubtless have assumed dimensions of a national character.

But Mr. Nicoll's work is not done. He has justly earned the position of an authority on the Potato question, and as such was

called on to give evidence in June last before the Committee appointed by the House of Commons to inquire into the causes of the Potato failures in Ireland. His evidence was mainly a narrative of the history of the Champion, but contained many hints derived from experience as to the best methods of combating disease. His main recommendation was—and he for one consistently follows it—to keep on raising new varieties from disease-resisting parents, and with a special view to hardiness. He did not claim for the Champion total immunity from disease; indeed, he warned the Committee that in all likelihood it, like Paterson's Victoria and others, would soon begin to fail and cease to be profitable after, perhaps, twenty years of public life—the years spent in propagation and selection not included.

As has been already mentioned, Mr. Nicoll has been engaged for many years in propagating new varieties, but in accordance

with his honourable character he has not yet yielded to the temptation to place any of these before the public as worthy of extensive planting. He candidly admits that for years he was baffled in his attempts to produce a truly meritorious variety. He has, however, hopes that the produce of seedlings of recent years may result in one or more varieties worthy of general cultivation. For instance, a seedling of 1878 has this season given a calculated result of no less than 26 tons per acre under garden cultivation, and 15½ tons under ordinary treatment in the field, in both cases without a trace of disease in the tubers. Some seedlings of 1879 have this season, under ordinary field treatment, yielded at the rate of from 5 to 11 tons per acre respectively, while the produce of seedlings grown only this season has been from 1 to 2 lbs. per plant.

The experience gained by Mr. Nicoll in his work may serve as a guide to less experienced aspirants, and may be briefly summarised by the remark that from all we know of Mr. Nicoll no one would rejoice more than himself, though others should succeed better than he. He states that "Propagating seed from the seed apple or plum must always be very uncertain, as Potatoes are exceedingly liable to sport, perhaps as much, if not more, than any other plant in cultivation which is grown for seed. Insects are not the only natural hybridisers. The pollen grains are so very small and light, that when shaken from the enclosing cells even a slight breeze of wind would carry them a considerable distance and deposit them on the gummed surface of the stigma, and so cause great variety in the contents of one plum." Still he is not certain that the stigma of a bloom that has been fertilised from stamens on the same plant will produce a variety of sorts. He finds that the Potato bloom, though possessing both stamens and pistil, does not ripen these simultaneously. The stigma is developed and fit for receiving pollen before the vessels on the anthers are opened for the discharge of the pollen grains. Thus fertilisation must be effected from older flowers on the same or some other plant by pollen conveyed by the wind or the agency of insects. Knowing this, and the proper moment for applying the pollen, Mr. Nicoll has obtained distinct crosses between the Champion and other more shapely and very hardy varieties, such as the Magnum Bonum. Great precaution needs to be exercised in keeping the produce of every seed thoroughly distinct, for the produce of one plum, especially if naturally fertilised, may give a hundred plants, no two of which may be exactly alike in all points. Even artificial fertilisation does not secure uniformity, though it greatly lessens the natural inclination to sport. The general type of the future Potato is no doubt fixed in the first tubers produced on the seedling plant if not in the seed itself, but considerable modifications may be looked for during the succeeding four or six years ere the type be permanently fixed. The most unpromising seedling may thus after all develop into a valuable variety. Coloured eyes will often disappear and coarseness of shape become toned down. Even yet one may readily observe the Champion itself slowly altering its character. It is not nearly so coarse in root and haulm as it was some years ago, while, on the other hand, occasional plants in a field may be observed reverting to their original type. Mr. Nicoll believes that were those occasional plants, the greenness of which after the first frosts in autumn makes them conspicuous among the others, carefully cultivated for a year or two, they would in all likelihood be found the means of continuing for another generation the native hardiness of the original.—WILLIAM RAITT, *Blairgowrie, N.B.*

PRUNING LUXURIANT ROSES AND VINES.

THE other day, when looking over an amateur rosarian's pets, a plant of Jean Rosenkrantz was pointed out as yielding only wood and leaves. The season's growths were at their base thicker than my thumb, and the general appearance of these stems immediately suggested the reason why flowers had not been produced. At the base of the shoots the buds could scarcely be seen. At the upper part of the shoots the buds had gradually become more prominent, till at the ends they were as prominent as those on any of the other Roses. To obtain a supply of blooms next season the tips of the shoots would merely require cutting off; but to make a permanent improvement at least one shoot would need to be cut well in, and then, instead of allowing the young shoots to grow as they pleased, their points would require to be pinched out when the young growths had attained a firm condition at least some inches above its base.

I have had a similar instance here with Grape Vines. A vine planted in spring with weakly canes, from which I expected only comparatively weak wood, have given us some canes where there are scarcely any buds at the base. The main leaves were forced off the stems at the end of August and the beginning of Septem-

ber; and now, instead of having to cut the canes down to within a foot of the ground as I had intended, many of them will have to be left several feet in length in order to secure a good leading bud. The lateral growths near the base are so pruned as to leave a bud to start, that the buried buds will not be missed in the process of thickening the canes equally throughout. Some canes intended for fruiting next year, the laterals of which have been kept regularly pinched, present a great contrast with the permanent canes in the matter of the buds. In this case the buds stand prominently out right from the base to the end of the canes. Similar cases will occur to many who have had practical acquaintance with young fruit trees, Plums being, perhaps, more given to produce this growth than other fruit trees—at least in the case of Plums the effects are more exaggerated. I thought a note on the above of more than passing interest just at present, when the time of pruning is at hand. A little attention to pinching in summer will always keep such growths away; but in cases where this has been neglected it is well to bear in mind that cutting them back merely causes a continuation of the evil, and in the case of young Grape Vines be most likely to cause a weakly growth instead of one of increased strength.—R. P. B.

MANCHESTER FRUIT AND VEGETABLE MARKETS.*

TIME was when this market was dependent upon Cheshire and the Lancashire bank of the Mersey for its supplies of fresh vegetables and fruits; but since the abolition of duties, improved steam navigation, and the more complete development of the railway system, no spot upon the earth's surface appears sufficiently remote to deprive the teeming populations of these districts of its productions.

But whilst these changes have proved a blessing to the community generally it will be said, probably, that they have tended to the injury of the native grower of many kinds of agricultural and horticultural produce. We know that that which is for the public good is oftentimes temporarily prejudicial to the interests of individuals. It is not the province of the writer of this article to point out any remedial measures that may suggest themselves, but he may be permitted to say that it seems pretty certain that the only change that can bring remunerative prices to the English grower—if they are not now so—lies between himself and the owner of the soil he cultivates. Diminished crops in this country, from whatever cause, no longer mean higher prices from the consumer. Abundance in any part of the world will flow into the scarcity of any other as surely as air rushes into a vacuum.

Other changes have also taken place. Ere the revolution in the sources of supply had begun the growers supplying this market brought their goods and disposed of them personally, now the great bulk reaches us by railway. The number of carts laden with their owners' produce which arrived in the market on the night of Friday the 8th of August, and before six o'clock on the morning of Saturday the 9th, last year, was 230. Their contents would probably be about one-eighth of the total supply brought for the Saturday's market. Very few large growers now sell their own goods; they are generally consigned to salesmen who have permanent standings in the market, and who charge a commission of 5 per cent. upon the sale of all goods entrusted to them. This system has its advantages, and perhaps not entirely free from occasional disadvantages. Doubtless the owner would frequently make more by his goods if he personally attended the sale of them; but then, to set against this, there is the time and money expended to enable him to do so, and therefore, all things considered, he is induced to save himself much trouble and employ the salesman.

In laying before the reader some of the chief sources of supply I will begin with our own country.

In the first three months of the year vast quantities of flowering Broccoli (erroneously called Cauliflowers by many persons) are received from Cornwall, very frequently 20 tons per day. The Cornish Broccoli are followed by extensive supplies from the midlands. The very best come from the neighbourhood of Northampton.

In March early Radishes are received extensively from Worcestershire. One salesman has sold three hundred hampers in one day. They leave Evesham and neighbouring stations in the evening, and reach Manchester at three o'clock the following morning in excellent condition. As I shall frequently have to mention Evesham as a source of supply I may here quote what a writer said of it fifty years ago:—

"The vale of Evesham is celebrated for the extreme richness

* Extracted from a Prize Essay by John Page, published by the Royal Manchester, Liverpool, and North Lancashire Agricultural Society by permission of that Society.

and fertility of its soil, which, by the successful mode of cultivation, produces earlier and more abundant crops than that of any other part of the country. Near the town, on both sides of the river, large portions of ground have been converted into gardens, horticulture constituting the chief occupation of the labouring class. Asparagus attains an unequalled perfection in the soil, and is extensively cultivated, and vegetables of every kind are, by means of the river Avon, conveyed hence to the principal towns in the surrounding district."

Since this was written capital, science, and industry have enabled the gardeners of the productive vale of Evesham to immeasurably increase their out-put, and the railway has come and superseded the river Avon in distributing it.

A great many spring Radishes are also grown at Wallasey, on the Cheshire side of the Mersey, and sent to the Manchester, Liverpool, and Yorkshire markets.

Watercress has become an article of considerable commercial importance. As an early spring salad it is a great favourite throughout these districts, and has a yearly increasing sale. It comes principally from Oxfordshire, where it is highly cultivated, and finds employment for a considerable number of peasants. It is cut in the afternoon, put on the train, and reaches the Manchester market at three o'clock the following morning. Many tons are sold here in one day. Thirty-five years ago the only supply of this article to Manchester was brought in a hamper or two by men, who gathered it from the Cheshire ditches.

The first supply of spring Cabbages comes from the far-famed Evesham. They are followed in a few days by those which are grown around London; then come the Lincolnshire and Cheshire Cabbages, and those grown in the neighbourhood of Warrington.

Asparagus is now plentifully supplied; the quantity consumed has probably quadrupled in the last eight years. One salesman has sold a hundred hampers here in one morning. Worcestershire (Evesham) and Northamptonshire are the chief sources of supply.

The first green Peas which appear in the market come from Algeria, Spain, and France in the order named. The first English from Evesham, the next from Nottinghamshire, and lastly from Yorkshire. From these two latter places the supply is enormous. One salesman has disposed of 1500 sacks in one day. The quantities grown in Cheshire and Lancashire are quite insignificant in comparison, and call for no further notice. The rule is to market Peas the next morning after they are gathered. If they stand in bulk more than one night fermentation sets in, and they are much depreciated. The rates for bringing green Peas to Manchester from Nottinghamshire are—for 2 tons and upwards, 13s. 4d. per ton; 1 ton and less than 2, 20s. They are put on the railway at Newark, Collingham, Swinderby, and Rollston.

From Yorkshire—Burton-Salmon, Selby, and neighbourhood, 11s. 8d. per ton; York, 12s. 4d.; Milford Junction, 12s.

I should have previously stated that the rate from Evesham is 20s. per ton.

In all cases the minimum weight for these rates is 2 tons, and lesser consignments are charged higher rates.

Six thousand five hundred sacks of Peas have been pitched in the Manchester market in one day.

The first new Potatoes seen in the market come from France in small quantities, and are always dear. In May they come from Cornwall and the Scilly Isles, and are followed by large quantities from Jersey. The Jersey Potatoes have very greatly improved in quality in the last few years, and the sale of them has consequently much increased. From the small beginning of a few baskets twice a week the trade has grown to many tons daily. One salesman has sold 40 tons of them in one day. The Jersey are closely followed by the "Ormskirk Pink-eyes." Of all early Potatoes these are probably the very finest flavoured. For many years their production was exclusively in the hands of small farmers and cottagers occupying the district lying between Southport and Liverpool; but of late years their cultivation has extended through South Cheshire, from the neighbourhood of Warrington away to Dunham-o'-th'-Hill. Much care is required and bestowed upon their production. They are kept indoors till they have sprouted, and then are carefully planted in "butts," over which straw mats are laid during the night and on cold days to shield them from the frost. These supplies are followed by those grown on both banks of the river Mersey, chiefly between Warrington and Barton. Vast quantities of excellent late Potatoes are also received from North-west Lancashire; indeed, it may be said that the county in which the tuber was first grown, after its introduction into England, has never since shown it any neglect. The once-popular "Fluke" Potato was raised from seed by John Turner, a labourer on the Langley Hill Farm, at Birch, near Middleton. It has now fallen quite out of favour, and is but sparsely grown.

All through the winter large quantities of Potatoes are received from Yorkshire, from Lincolnshire, and from Scotland. Most of these are those known as the "York Regent," than which no better late Potato need be grown. I have no means of ascertaining the quantity of Potatoes brought into Manchester in a year, but as all the populous towns by which it is surrounded draw their supplies from it the total quantity must be immense.

Beside the great fruit and vegetable market at Shude Hill there is an extensive Potato market on the premises of the Lancashire and Yorkshire Railway Company, in Oldham Road. This market is in the hands of the Railway Company, who pay the Corporation £1500 per annum for the privilege of holding it. Under the agreement Potatoes and Carrots only are permitted to be sold here, and none but those which arrive by the Company's line.

The largest quantity of new Potatoes brought into the market at Shude Hill in one week, from 1870 to 1879 inclusive, has been as follows:—

LOADS OF 18-STONE.

1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.
21,000	29,500	18,200	19,100	18,750	18,500	19,000	14,300	23,000	22,250

That the home grower of this popular and useful article of food has not a monopoly of its growth, however, the following figures will testify. They are copied from the Government return for 1877. I have been unable to procure last year's return, but I believe the quantity to have been greatly in excess of that in 1877. I learn from a private source that the quantity shipped from Hamburg alone last year was 4,592,270 cwt.

YEAR 1877—From

Germany	3,636,600 cwt.	Portugal	38,019 cwt.
Holland	729,941 "	Channel Islands	364,451 "
Belgium	933,021 "	Malta	63,253 "
France	2,079,185 "	Canada	84,756 "

making a total of 7,929,226 cwt.

The following are the rates for carrying Potatoes to Manchester from many of the places named:—Belgium, 14s. per ton; Hamburg, 22s. 6d.; France, 35s.; Jersey, 50s.; St. Malo, 50s.; Ayrshire and district, 21s. 8d. to 23s. 4d.; Perth and district, 25s. to 27s. 6d.; Goole, 11s. 10d.; Hull, 13s. 1d.; Keadby and Crowle, 12s. 2d.; and Holbeach, 16s. 6d.

Cheshire.—Delamere, 8s. 8d.; Mouldsworth, 5s.; Manby, 9s.; Helsby, 9s.; Tarvin, 9s.; Mobberley, 7s. 11d.; Knutsford, 7s. 11d.; Plumley, 8s. 4d.; Northwich, 8s. 9d.; Hartford, 8s. 6d.; Cuddington, 7s. 6d.; and Wallasey, 8s. 4d.—(*Royal Agricultural Society's Journal*.)

NEW AND OLD VARIETIES OF POTATOES.

WE have had a great addition to the number of new varieties of Potatoes of late years, respecting the merits of which all persons are not of the same opinion; some praise while others condemn the same Potatoes. I can only account for this difference of opinion by attributing it to variation of soil, situation, and method of cultivation. Much as I approve of new introductions, not only of Potatoes, but of other vegetables that may be really beneficial, I should like to see in the new something superior to the old. Now in new introductions of Potatoes, without looking for superior quality, I should be glad to find one that could equal a Jersey Blue or a Dunbar Regent for high quality. There are several old varieties that are really superior to any which have been raised of late years. The highest quality will always command the best price in the market, therefore we must consider the new varieties as novelties which it may be desirable to continue raising, in the hope that we shall some day be fortunate and find one of our seedlings that will equal in quality those that we have been endeavouring to supersede. Our patience and diligence have been great, but at present we can only congratulate ourselves that we have been trying for upwards of forty years to raise new varieties without having succeeded in producing one that will compare in quality with some that were in daily use before we began. We have obtained many useful varieties, I admit, but few that have made their mark in a commercial point of view like the York Regents, Flukes, and Dunbar Regents. When we shall be enabled to announce that our new introductions have obtained a better reputation and a higher standing than those that we have discarded we shall be enabled to report progress.—R. C.

HOLIDAY NOTES.

IN continuation of the notes taken during my holiday tour I now send a short descriptive account of Trentham and Keele.

TRENTHAM.

This being perhaps the best known, if only by name, I give it precedence as one of the best schools in the kingdom for thoroughly

practical horticulture in all departments. From an architectural point of view Trentham also stands pre-eminent, for it is said to have the finest front in Europe. Whether this be true I do not know, but I shall never forget the admiration I felt when some years ago, after walking through the woods and country lanes from Keele and having traversed the greater part of Trentham Park, a gentle sweep of the drive brought the Hall in full view. It would be impossible for me to adequately describe its beauties, and as I am neither a landscape painter nor architect I will not attempt to do so.

As this paper contains notes only, I shall only mention what I think is likely to be of most interest to your readers, for a full description of Trentham would require half the Journal. Flower gardening was at one time a great feature there, but it is no longer carried out as it used to be, although I need scarcely say that Mr. Stevens could undoubtedly render it as good as he did in times past were the means forthcoming. The plant houses, however, contain abundant treasures. In one of the stoves near to the bothy were some grand specimens of *Lælia autumnalis* 2 feet and more in diameter, in teak baskets and suspended within a foot or 18 inches of the roof glass, and shaded only from strong sunshine by means of sprays and boughs of Yew, thus giving them the nearest approach to natural shade. For size and vigour I have never seen their equals. The compost they were in was of the roughest description, consisting of fibry peat, lumps of chareoal, and sphagnum; stagnation was quite impossible. Out of doors, partially shaded by trees and shrubs, were two dozen extra strong plants of *Lapageria alba* in pots 14 inches in diameter. These I understood were for sale. The fine specimen *Camellias* in the large conservatory were in the most robust health and well set with buds. There was also a fine example of the charming *Luculia gratissima*, which produces its huge trusses of fragrant blossoms in the greatest profusion during the winter months. This plant should be more generally cultivated, as anyone who can grow *Camellias* well could succeed with it. The other permanent occupants were *Seafortias*, *Chamærops*, *Latanias*, *Rhododendrons*, *Roses*, *Acacias*, *Bamboos*, and *Hedychiums*, all in a healthy condition.

The large *Odontoglossum* house contained hundreds of *O. Alexandræ*, many of them in flower and all first-class varieties, *O. cirrhosum*, *O. Pesatorei*, *O. triumphans*, *O. hastilabium*, *O. citrosum*, and *O. nebulosum* in large numbers. Mr. Stevens has a remarkably good variety of *Epidendrum vitellinum* which he grows extensively; the colour is unusually bright, and the sepals and petals of waxy texture. *Pleione lagenaria* (Indian Crocus) is well grown at Trentham, as are also *Calanthe Veitchii*, *C. vestita*, *Barkeria Skinneri* and *B. spectabilis*, *Dendrobium nobile*, *D. Wardi*, *anum*, and *D. Devonianum*. The copings in the new plant stove are very tastefully decorated with *Panicum variegatum* and *Adiantum cuneatum* placed alternately, the effect viewed from either end being most charming. *Tabernæmontanas* are evidently great favourites, for good specimens are to be seen by dozens growing luxuriantly. Amateurs who are fond of *Gardenias*, but are not successful in growing them, should give this plant a trial; the soil suitable for *Gardenias* will grow *Tabernæmontanas* to perfection. Adjoining the stove and separated by a glass partition is a new aquatic house, containing a tank in the centre 40 feet long by 8 wide and 3 deep devoted to the cultivation of *Nelumbiums* and *Nymphæas*. *Nelumbium speciosum*, the Sacred Bean of the Egyptians, was producing its lovely rose-tinted flowers in succession. One was open on the day of my visit, and measured 12 inches in diameter; after flowering the capsules are very interesting. Anyone possessing a stove may grow it if they choose, as the beautiful peltate leaves, of a rich metallic green, only reach the height of 4 feet. One-half of a 36-gallon eask, or a No. 1 pot with the drainage holes plugged up, will hold sufficient soil, which should be composed of loam, decayed manure, and grit or sand. Water should be added as the leaves develop until it reaches the top of the vessel; requiring plenty of light they should only be shaded from very bright sun. *Nymphæa cærulea* and *N. rubra* were also in flower in the same tank.

The range parallel to the last is devoted to the cultivation of Tomatoes, Melons, and Cucumbers; the latter had stems more like old Grape Vines than Cucumbers, they were so thick and knotted. Planted on hillocks as they are there, and in soil rich and lumpy, a sodden state of the border is nearly impossible. Melons are grown in the same way when not in pots, the soil being heavier in character: the variety principally grown is the old and well-tried Trentham Hybrid. The noted glass cases, or covered walls, designed by the late Mr. Fleming, contained a number of fine Cherries, Plums, Figs, Grapes, Peaches, &c., excepting the unheated portion of the glass wall devoted to the latter, where the fruit was scarce owing to the imperfectly ripened

wood of the previous autumn. The fruit in the heated section was plentiful and exceedingly fine. The crops of Grapes in the vineries were not so good as I have seen them at Trentham in August. The early houses were cleared of their fruit, and the Vines rapidly losing their leaves, the wood being thoroughly well ripened. Mr. Stevens has for some years furnished the back walls of many of the vineries with *Camellias*, where they flower very freely; anyone having the back walls of vineries unoccupied, and who require an abundance of *Camellias* for cutting, should adopt the plan. Bananas have a house to themselves about 60 feet in length and about 18 feet wide, and are planted out, a constant supply of fruit being kept up by succession plants. *Musa Cavendishii* is the kind grown. The old aquatic house contained fine plants of *Aloeasia metallica*, *A. macrorhiza*, and some good *Crotons*. The roof and pillars were draped and festooned with the old but ever beautiful *Cissus discolor*; the walls of the tanks were furnished with *Selaginellas* in a dense carpet dotted with good plants of *Caladium argyrites* plunged, thus forming an edging of a very pleasing kind.

Out of doors were a number of Strawberries in pots, which for health and vigour could not be excelled, and I was informed that the only stimulant they had was night soil in the compost. This is a hint for growers.

KEELE HALL.

Keele Hall has long been famous for first-class Grapes and its grand Holly hedge. Under the skilful management of that able and respected horticulturist, the late Mr. Wm. Hill, these gardens assumed a prominent position amongst the best of the country; nor are they receding from that position, if we may judge by the work being done by their present excellent Superintendent Mr. J. Wallis, who gained much of his experience with his predecessor Mr. Hill. The early Peach house was never in better condition than when I had the pleasure of seeing it. To say the trees were in good condition would be faint praise; they were superb, not a trace of red spider or scale, every leaf healthy, and every shoot in its proper place; no crowding of bearing wood (the stumbling-block of too many of our otherwise excellent gardeners), nor yet any waste of space, but each shoot so placed that its leaves do not interfere with or overshadow the leaves of its neighbour, thus allowing free play of air and light upon the leaves, shoots, and last but not least the embryo buds in the axils of the leaves. Not one inch of the spacious trellises was unoccupied, and the trees were furnished from top to bottom with wood of uniformly excellent character. It is only due to Mr. Wallis to place this on record, for I have never seen Peach trees so good in any part of the country. The Peach and Nectarine trees in the later houses were bearing good crops of fruit of great size and excellent finish; specially noticeable were *Noblesse Peach* and *Impératrice Nectarine* in the Peach ease. The Cucumber and Melon pits contained good crops, and in another pit was a fine batch of *Eucharis amazonica* plunged in leaves and producing their lovely white flowers.

Mr. Wallis is busily renovating the Vines and Vine borders, lifting and replanting such as are likely to give satisfactory returns, and planting young Vines in other cases. Those that were planted last year have borne several fine bunches, and have furnished the house with good bearing wood for the ensuing year. The old-established Vines have carried crops this year equal to those of preceding years; indeed, if there is any perceptible change in their condition it is for the better, which is very creditable to Mr. Wallis, considering the work they have done in the past under the manipulation of that champion Grape-grower Mr. Hill. The Black Hamburgs were very conspicuous for their regularity of bunch, large size of berry, and for the intensity of their colour and beautiful bloom. *Gros Colman* was also well grown and particularly well coloured for the time of year (August). *Muscot of Alexandria* had an exquisite amber colour, the colour so often coveted but so seldom obtained before the end of October. I may here remark that the piecemeal system of making Vine borders is carried out here, and one that cannot be too often repeated in your columns, for it is even now common to see new Vine borders made to their full extent at once, a practice that cannot be too severely condemned whether the border be inside or out. It may here be contended that where the border is more or less below the surface of the surrounding ground an open "pit" is undesirable, which I grant; but I reply that it is quite unnecessary to excavate at any time more than a foot over and above the space intended to be filled with new soil, and this foot of space I would strongly recommend to be left open if possible to the full depth of the border, not only as a means of drainage but as a means of aeration of the border, but if it cannot be left open let it be filled with the roughest of elinkers and brickbats and covered over thinly with soil.

The Camellias were in good health and well set with buds. I noticed on the roof of the Camellia house a large plant of *Tacsonia Van-Volxemi* bearing hundreds of its handsome flowers, and a quantity of fruit in all stages of development. I have never seen this *Tacsonia* in such fine condition; its ripe fruit may be used for dessert by those who prefer fruit of a pronounced acidulated character. I also remarked at the front of one of the Peach cases a batch of the brilliant *Lobelia cardinalis*.

The ribbon border in the kitchen garden was very beautiful, the lines being formed in the following order commencing next the path—*Viola lutea*, *V. Perfection*, *Pelargonium Waltham Seedling*, *Dactylis glomerata*, *Dahlia Zelinda*, and the back row consisted of *Tritoma Uvaria*, *Hollyhocks*, and *Dahlias* of taller growth placed alternately; the border viewed from either end had a most charming effect. There are beds in another part of this garden devoted to a few old-fashioned flowers, such as *Pentstemons*, *Carnations*, *Mignonette*, *Nemophilas*, *Candytuft*, *Sweet Williams*, *Calceolaria amplexicaulis*, *Pansies*, &c. A few yards further on and just outside the dressed grounds is the dell, the descent into which is by rough steps and well-worn narrow paths. The beauty of this spot amply repays a visit where *Lastreas* and *Pterises*, *Athyriums*, and *Scolopendriums*, *Campanulas*, *Brambles*, &c., all grow and commingle in natural luxuriance. The quietness of the place suggests the spot for reflection and repose. Returning to the nearest part of the dressed grounds a subterraneous passage and a bridge of a carriage way lead to the flower garden at the front of the house. The principal beds and chain borders were filled with the usual kinds of plants, and looked as pretty as could be wished.—J. U. S.



HARDY FRUIT GARDEN.

THE planting of fruit trees should be followed up as the condition of the soil permits, for from the superabundant rain strong soils can scarcely be planted with advantage. If the weather continues unfavourable it is better to defer planting until spring, otherwise autumn planting is preferable. The weather has also been unsuited for other work in connection with fruit trees, especially root-pruning, an operation that is best performed before the soil has quite lost the heat imparted to it by the sun. Careful root-pruning or lifting the roots of over-luxuriant and consequently unfruitful trees is beneficial, while weakly trees may be restored to a healthy condition by having the roots brought nearer the surface, and encouraged by supplying suitable soil, such as turfy loam, in which they can be laid. If the soil be heavy a portion of old mortar rubbish, road scrapings, or other gritty material may be added with advantage, but where the soil is light heavy loam and marl may be employed. In selecting young trees for planting it is of the greatest importance to obtain varieties which are known to succeed well in the locality, as there are both Apples and Pears which are excellent in the north and midland counties, but not satisfactory in the south, and *vice versa*. Pruning of Apple, Pear, Plum, and Cherry trees should now be proceeded with whenever the weather is favourable, so as to have work of this kind in as forward a state as practicable, instead of deferring such work until spring, when other work will be pressing. Pruning Gooseberry and Currant bushes should be proceeded with as opportunity offers, and a dressing of manure may be pointed into the soil. Fig trees against walls often suffer in severe winters if left unprotected. They should therefore be unfastened from the wall, the branches being tied up loosely in bundles and covered with clean straw and mats, or the trees may be thatched with straw or bracken, without removing the branches from the wall; but in either case the border containing the roots must be well mulched with littery manure.

FRUIT HOUSES.

Peaches and Nectarines.—The whole of the earliest forced trees having been properly dressed, the branches secured to the trellis, and the house thoroughly cleaned, the latter may be closed at the middle of the month, but air must be freely admitted in mild weather or when the temperature is over 50°. Do not employ fire heat except to exclude frost, as the slower the trees are excited the stronger will

be the blossoms. The inside border must be made thoroughly moist by an application of water, or in the case of weakly trees of liquid manure, and it will be advantageous to render it tepid. The outside border must be well protected with litter or dry fern, having wooden shutters or tarpaulin on the top to throw off wet and prevent the materials from being blown about. Trees intended to be started early in the year should have all necessary dressing, cleaning the house and keeping it as cool as possible. The lights may remain off until severe weather, as this will insure complete rest for the trees, and prevent the undue excitement which not unfrequently occurs when the roof lights are fixed. Trees in succession and late houses are retaining their foliage longer than usual, although the wood is apparently ripe and the buds prominent and abundant; but no further delay should take place in lifting and replanting, it being important that these operations be completed promptly after the wood is sufficiently ripened. The trees will then soon be ready for the final pruning—a very insignificant affair, as with proper disbudding, and allowing only those shoots to grow for future bearing that can be fully exposed to light and air, there is little need for the knife at the final winter thinning. We have not shortened a shoot for many years of Peach or Nectarines grown under glass, and the shoots 5 to 6 feet in length will afford a fruit at every foot length to near the point without any appreciable difference in the size or quality. The practice of cutting back the shoots to 10, 15, or 18 inches at most is now fast falling into disuse. The great point in Peach culture is the thorough exposure of the growth to the maturing influences of sun and air.

Figs.—Trees in pots intended to furnish ripe fruit in April should be at once placed in position—pillars of loose bricks being erected to stand the pots on, so as to bring them up to the required height in the pit. A good body of fermenting Oak or Beech leaves must be introduced between the pedestals and brought up around the base of the pots, but the heat there and at the sides of the pots must not exceed 75°, replenishing the leaves from time to time to maintain the bed at the proper level. The fermenting material will economise fuel, produce a moist genial atmosphere as well as mild bottom heat for the roots, and a rooting medium highly favourable to the swelling-off of the crop. If the trees are in small pots they may be placed on the surface of the bed, and as the heat declines plunge them. The temperature should be kept artificially at 55° by day and 50° at night, ventilating freely at 65°. Damping will only be necessary on fine days. Trees in succession houses should, when leafless, receive attention in pruning, an operation requiring some judgment. Trees with the roots restricted to small borders, if attention is given during growth to stopping and thinning the shoots, will need little pruning, whilst those that have a good run of trellis and the roots not so restricted will usually require a good thinning at the upper part of the trellis annually. Remove all elongated spurs, reserving where desirable those which are short-jointed and fruitful. The trees should after pruning be loosed from the trellis and washed with a brush, taking care not to injure the embryo fruit, thoroughly cleaning and if necessary painting the house. Point over the border lightly with a fork and remove the loose material, giving a top-dressing of manure about 3 inches thick. If the trees have been lifted the removal of the surface soil will not be necessary. The houses should be freely ventilated at all times except during frost.

PLANT HOUSES.

Mignonette.—This to do well in the winter season requires a light situation, otherwise it becomes weak. The plants intended for early flowering must be regularly tied up, placing neat stakes to the principal shoots. Water carefully, affording supplies only when necessary, providing those flowering or well advanced with a night temperature of 45°, and 50° in the daytime. Succession and late-flowering plants should have plenty of air, and no more water than will keep them from flagging, too much water and a close atmosphere being destructive to the plants.

Show Pelargoniums.—Keep show varieties as near the glass as possible, affording them plenty of air. Have them as dry at the roots as is consistent with their safety, to prevent their making sappy growth, over-luxuriance not being nearly so productive of bloom as

solidified growth. Tie out the shoots neatly as they lengthen, and destroy aphides.

NOTES ON VILLA AND SUBURBAN GARDENING.

KITCHEN GARDEN.

Laying-in Broccoli.—After having twice successively lost the greater portion, and in some instances the whole, of the Broccoli crops during the past severe winters, many will be inclined to take some precautions against a recurrence of the destruction. This is all the more necessary seeing what coarse succulent growth has been made by the Broccoli and other members of the Brassica family this season. The part most susceptible of injury by frost in the Broccoli are the long exposed stems; protect these, and the number of fatalities will be considerably diminished if not altogether prevented. There are several ways of doing this, all of which, however, will materially reduce the size of the heads; but then small Broccoli are better than none—many, indeed, prefer small heads. The most laborious plan, but which is recommended especially when the plantations are much scattered about, is to lift the whole with as good balls of earth about the roots as possible, and to bed them all in together where they can be conveniently and roughly protected. The site selected should be perfectly open, and if the soil be at all poor should have a quantity of decayed manure worked-in as the process goes on. Commence by first opening a rather deep and sloping trench, then lay in the plants so as to face either the north or west rather closely, and to such a depth as to insure their being buried up to the crowns, with the soil thrown from the next trench. The rows of plants should be well up together, but the crowns ought not to overlap. The last trench opened to be filled with the soil wheeled away from the first made. The roots should have the soil with the manure, should this also be used, packed rather firmly about them, and into this they will soon spread. The advantages of bedding together is that it admits of the crowns being also protected with bracken, rough litter, or other light material should severe frost appear imminent. Veitch's Autumn and Snow's Winter Broccolis are much liable to injury by frosts, the former variety especially; and some or all of these may with advantage be bedded-in, either in the open ground or in large frames, and be protected with mats or lights as the case may be. The rows of other varieties, if those in charge are dubious about the wisdom of lifting, ought at any rate to be heeled over where growing, the only notable exceptions being Osborn's White and similarly dwarf-growing varieties. Commencing at the northern side of a row, take out a large spit from near the first plant, distributing this where the plant will be laid, then thrust in the spade to its full depth on the opposite side, and about 9 inches from the plant, and steadily bring the handle forward so as to force the head of the plant on to the little mound of soil previously formed. Work the surrounding soil up to the ball, then take another spit of soil from the front of the plant next in the row, and with this cover the stem of the previously moved plant, going on in this manner to the end of each row. In this instance the check to the growth is less perceptible, a good ball of earth being easily moved with the roots. Rapid thawing is very injurious, and it is to prevent this that the plants are made to slope to the north and away from the direct rays of the sun.

Cauliflowers.—Any of these that have formed heads may be lifted and bedded-in in an open shed, or be hung up in a cellar, and in either instance will keep for some weeks. Much injury has already been done to them by frosts, and now that the winter has apparently set in no risks should be run by leaving them to grow to their full size before lifting. The autumn-sown plants pricked-out in boxes or frames should not require much protection for some time, and ought to have the lights off them on all fine days, and plenty of air at other times in order to prevent them making much delicate growth.

Lettuces.—These, again, that are to be wintered in frames should be kept as hardy as possible. They are really hardier than many are aware, and the market gardeners in the south have during the past month put out large breadths, principally of hardy Green Cos varieties, with every confidence in their power to withstand any kind of weather that may be experienced during the winter. Luxuriant growth is quickly damaged by frost, but this may easily and should

be checked by transplanting. They require to be planted rather firmly.

GREENHOUSES AND FRAMES.

Chinese Primulas.—These are now commencing to brighten the greenhouses and conservatories. To bring out their colours and to strengthen the trusses of bloom give them a light warm position (a swing shelf near the glass suits them in this respect), and weak liquid manure occasionally. Much moisture about the roots and a low temperature is very likely to cause them to canker at the collar, this being followed by a loss of the lower leaves and ultimately of the plants. They must not, however, be allowed to become dust dry, the secret of success being to give a thorough watering when dry, regular or daily dribbles doing the mischief.

Persian Cyclamen.—Much of the foregoing also applies to these. They should, at all events till they are nearly at their best, be either arranged in groups on a light airy stage, or be placed on a shelf near the glass. If in the front rows among the ordinary occupants of the house they are very liable to become spindly, weak, and insect-infested.

Zonal Pelargoniums.—Sturdy plants both of the single and semi-double flowering varieties that have been specially prepared are now very effective. Keep them in a dry, open, warm position, and they will continue flowering for a long time; and do not supply water too freely, as that will induce strong growth at the expense of the bloom. Standards are really the best for winter flowering, simply because of their being well elevated and exposed, causing the formation of most sturdy and floriferous growth.

Browallia elata.—Plants of this are now at their best, the light sprays of small bright blue flowers being very effective among the Pelargoniums and *Salvia splendens*. When cutting the *Browallia*, and also the *Salvias* for vases, cut over a whole plant at a time, which will induce them to push up a second crop of bloom. They will also be encouraged in this by an occasional use of liquid manure. If a genial temperature is maintained with the help of a little fire heat, so as to prevent the temperature from falling below 55° in the daytime and from 45° to 50° by night, all the foregoing will bloom much more freely, and other kinds will be forwarded considerably. *Solanum Capsicastrum* ought also to have the benefit of a little fire heat to properly ripen their fruit. Tepid water should always be used in a warm house.

Cinerarias and Calceolarias.—These will still thrive in frames, but must be carefully protected from frosts. Perhaps the best place for them now is on a cool bottom well away from the hot-water pipes (the latter especially will do well on shelves near to the glass), in a house where no fire heat is given beyond enough to keep out frost. Any *Calceolarias* yet in seed pans may be potted off and others be shifted on before they are much rootbound, or otherwise they will flower prematurely. A few of the latest *Cinerarias* may yet receive another shift; they are sometimes very useful in 5-inch pots. Drain the pots carefully and use rather light loamy soil. Avoid shading either kind with other plants, and also crowding, and attend well to the watering.

Violets and Auriculas thrive under much the same conditions as the preceding, crowding and fire heat being injurious to both. Do not allow them to become dry at the roots, and pick off all decaying leaves.

Fuchsias.—Old plants that have flowered, and which are required to bloom early, should now be partially dried off, but they must not be allowed to become dust dry or they will not start freely. Place them where they will be cool but safe from frost, and not, as is often the case, beneath stages exposed to the drips from other plants. Plants from cuttings struck in August should now be shifted into 6 or 7-inch pots, and be placed near the glass in a house with a temperature of 45° to 50°. Tie up and stop the leading shoots according to the habit of the variety.

TRADE CATALOGUES RECEIVED.

Thomas Laxton, Bedford.—*List of New Peas.*

Francis and Arthur Dickson & Sons, The Upton Nurseries, Chester.—*Catalogue of Forest and Ornamental Trees.*

Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Roses.*

TO CORRESPONDENTS.

Address (E. Hill).—The address you require is Messrs. Arnold & Sons, 35 and 36, West Smithfield, London.

Books (H. Martin, Paris).—There is no single work published in England that fully treats on all the subjects you mention, but much of the information you require may be obtained from the following:—Paxton's Botanical Dictionary, Johnson's Gardeners' Dictionary, and the Treasury of Botany. A good work of reference for the synonyms of plants is Steudel's Nomenclator Botanicus. (C. F.).—There is no book published such as you appear to require, but the subject to which you refer shall have our attention. (W. R.).—"The Eatable Funguses of Great Britain" published at this office, price 7s. 6d., contains a number of coloured plates of the most important edible species.

Climbers for a Small Conservatory (E. A.).—Lapagerias rosea and alba, Passiflora caeruleo-racemosa, and a Maréchal Niel Rose will be suitable. Tacsonia Van-Volxemi and T. exoniensis are free-growing and effective climbers; and very beautiful are such free-growing Fuchsias as Corallina and Lustre when they are trained to a roof.

Vines (Idem).—Your house will not accommodate more than eight Vines, the two at the ends being 18 inches from the glass, and the others 3 feet apart. The Black Hamburgh will prove by far the most satisfactory, and we should not plant many others. A good white companion for it is the Buckland Sweetwater. Vines do not succeed well on back walls when the roof is shaded. You may try the Black Hamburgh and Alicante.

Mildew on Roses (Castlevellan).—We should prune the plants, removing the foliage, and dress the branches with sulphur made into a paint with a solution of soft soap. A little clay and lime may be added to make the mixture adhere, and if the colour is too light it may be darkened with soot. Apply the mixture with a soft brush.

Horn Shavings (J. P.).—They are valuable for mixing with the soil of Pelargoniums and all plants needing manurial aid; if used too freely, however, they promote the growth of foliage at the expense of flowers. Used in the same proportion as bone meal the results are similar.

Stephanotis Flowers (J. Gibson).—You have evidently a free-flowering form of this plant, and also a good one, for the flowers sent are very fine, especially when we consider the plant has been flowering since March 10th, and is likely to continue for an indefinite time. Your mode of culture is good as well as the variety.

Erratum.—By a printer's error the name "Mattot's" Pearmain Apple appears in the report of the Pomological Meeting at Hereford on page 418; it should have been printed "Mabbot's" Pearmain, a variety that is being distributed by Mr. George Paul of Cheshunt.

Fig for Wall (G. W., Cardiff).—You cannot plant a more useful variety than the Brown Turkey. Mix plenty of lime rubbish with the soil, and make it very firm to prevent luxuriant growth.

Potatoes (J. S. D.).—The Crystal Palace Kidney, Edgcott Seedling, Huntingdonshire Kidney, Beaconsfield Kidney, and Yorkshire Hero are all forms of the Lapstone Kidney, and have no doubt been selected from it by different cultivators.

Exhibiting Apples (A. Maw).—If you write to Mr. Barron, the Royal Horticultural Society's Gardens, Chiswick, London, he will supply you with all necessary information for submitting them to the Fruit Committee.

Vines Outside the House (A Constant Reader).—It is important that the wood of the Vines be well matured, and then they may be safely turned outside the house, especially if they are protected with hay bands during severe weather. Prune them immediately the leaves have fallen. When placed in the house in the spring they must not be submitted to a stove temperature at first; 50° at night will be quite sufficient until the buds have fairly started.

The Vegetable Insect (Deodar).—It is probable that what you term "an insect which buries itself in the earth and subsequently becomes a perfect plant" is the Cordyceps or Sphaeria Robertsii, of New Zealand, which is known there as "the vegetable caterpillar." It was figured and fully described in No. 881, vol. xxxiv., which you can obtain from this office post free for 3½d. in stamps.

Vine Roots (C. B. M.).—If you will inform us in what respect your Vines are satisfactory—stating the condition of their growth and foliage, and of what ingredients the border is composed—we shall be better able to suggest the cause of the slight injury of the roots. If, however, you think the Vines are affected with the Phylloxera we can inform you that there are no symptoms of that pest on the roots now before us.

Rebuilding Walls (A Gardener).—We never undertake to give estimates of the cost of work of any kind, as this necessarily varies in different districts. No one can determine the cost of such alterations without seeing them, and you cannot do better than invite two or three other builders to examine the walls and submit tenders for their restoration; you will then get the work done at the lowest cost, which we presume is what you require.

Fruit Trees (W. W. A.).—If you will state the number of trees or varieties you require we will name some that we think will be suitable; without this information you will perceive that we are not able to give you a precise and satisfactory reply, as we should perplex you if we named many more varieties than you wish, and disappoint you if we did not name sufficient. The Pear you have sent shall be examined, and the name given if possible.

Vines for Planting (James Belton).—The following advice of an excellent cultivator will answer your question—"Those who intend planting a vinery, and who have not yet obtained the young Vines, should purchase them at once from a respectable nurseryman, and pay the highest price for them; a shilling or two saved in the price of a Vine must be considered a small matter in comparison with having a large number of failures from planting badly-grown canes. Those who rush to the cheapest market for their goods generally pay most in the end. When the plants are sent home they should be kept until planting time in a cool house where frost cannot injure them."

Potting Lilium auratum (D. Vickers).—Turn the plant out of the pot,

and remove as much soil as you can without injuring the roots. As the bulbs are small, 7-inch pots will be sufficiently large. Drain them well, and use a compost of two parts light turfy loam, one part sandy peat, and one part leaf soil or old cow dung, with a free admixture of sharp sand. Pot so that the crown of the bulb may be about an inch below the rim of the pot, and when the plant has made a shoot a few inches high top-dress with rich compost. Keep the plants safe from frost, and the soil only just moist, but when the plant is growing freely and flowering water copiously. It cannot have too light or airy a position.

Oporanthus luteus (C. M. Major).—We were unable to ascertain the name of the specimen you sent in time for the last issue owing to the flowers being in a great measure faded, but from careful examination of such characters as were discernible we believe it is the Amaryllidaceous plant named above. It is a native of South Europe, and is first recorded in cultivation in England about the close of the sixteenth century. It is figured in Mrs. Loudon's "Flower Garden." For cultivation in borders there are few autumn-flowering plants of its class that equal it. Although so old, it is not so common as might be expected.

Eriobotrya japonica (Barron).—The specimen you sent was a leaf of Eriobotrya japonica, the Japanese Loquat, an evergreen tree included in the natural order Rosaceae, and closely allied to the genus Mespilus. The fruit is about the size of a large Gooseberry, yellow and downy, somewhat resembling the Apple in flavour, though Sir Joseph Banks considered it equal to the Mango. As the name implies it is a native of Japan, whence it was introduced about a hundred years ago. In the southern counties of England it succeeds well trained to a wall, a south aspect being particularly favourable, but further north the protection of a greenhouse is requisite. The flowers are produced early in the year.

Destroying Slugs (A Lady Gardener).—Slugs are easily reduced in numbers if simple means are adopted at the right time. Fresh strong dry guano will kill slugs, as also will freshly slaked lime, but old lime has little effect on them. It is, however, obviously no use applying either the lime or guano in the daytime when the slugs are resting in their haunts, but the dusting should be done about an hour after dark when they are feeding or in search of food, and then again at daybreak during mild weather. Small heaps of brewers' grains and bran laid on the beds will be covered with slugs an hour or two after dark, and a covering of lime and salt will destroy them. By persevering with this practice slugs may be considerably decreased in numbers. If slugs and grubs eat the bulbs in the soil each bulb ought to be surrounded with sharp sand and wood ashes.

Destroying Earwigs (Idem).—If you refer to page 233 of the issue of September 9th, 1880, you will find Mr. Abbey has proved that if about 8 ozs. of nicotine soap are dissolved in a gallon of water, the solution, when applied with a syringe, instantly kills all the earwigs that it reaches. Syringe your rustic trellis thoroughly, and any solution falling to the ground would have the effect of checking the movements of slugs there also.

Espalier Trees Cankered (F. J.).—In all probability if you cut the tree down as you propose, and also replant it in good soil, the future growths will be healthy. It would be better, however, to transplant the tree this year, only partly cutting it down by removing the most cankered portions, as the foliage of next summer would incite root-action, and that being insured you may then cut the tree down next autumn. We have seen cankered trees rendered healthy by replanting and judicious pruning without cutting them down entirely; but perhaps your tree is too seriously affected to be renovated in this manner.

Treatment of Nepenthes (Beta).—It is probable that the cause of the shoots decaying is too low a temperature and excessive stagnant moisture. Nepenthes are natives of tropical swampy regions, and consequently though requiring abundance of moisture they also need a moderately high temperature. It should be as equable as possible, about 70° being suitable; rather lower in winter, but not below 65° if possible, and on no account below 60° to ensure the health of the plants. They should be provided with a compost of fibrous peat and sphagnum well mixed, and if grown in pots these must be efficiently drained; but as little depth of soil is necessary the plants thrive well in baskets suspended from the roof of an arched house or stove. Supply water most freely during growth and in hot weather, but at this time of year much less is required. Syringing the growth and foliage is also beneficial during the summer, or at other times in clear warm weather, provided it be done early in the day.

Fallen Leaves (J. G.).—If your Conifers are healthy we should let the leaves remain, as you do not object to their appearance. They will not absorb all the rain that falls during the winter months, while, as you observe, they keep the soil moist and cool in summer, and exclude frost in winter; they have also a manurial value suitable for the trees. If the specimens are not healthy you may remove the leaves and spread fresh soil and manure on the space they occupied. The leaves would be useful if dug into the ground, especially if it is heavy, intended for Potatoes.

Plants, Roses, and Cucumbers (T. K.).—We presume you have a stage in the house that is not shaded with the Cucumbers, and also shelves near the glass. In such positions you may grow all the plants you name, also Achimenes, Eucharises, Pancratiums, Gloxinias, Amaryllises (Hippeastrums), Poinsettias, Euphorbia jacquiniæflora, Epiphyllums, Gardenias, Gesneras, and nearly all stove plants having ornamental foliage. Few plants besides Ferns will succeed beneath the Cucumbers. The house will be too hot for the Maréchal Niel Rose; but at Lambton Castle Mr. Hunter grows such Tea Roses as Isabella Sprunt, Duchess of Edinburgh, Safrano, Niphetos, Madame Falcot, and Vicomtesse de Cazes planted out in a trough of rich soil at the back of a Pine stove, where they form quite a hedge, and produce hundreds of flowers during the winter months. You might try the experiment on a small scale if you particularly desire to have Roses in the house, but it is not certain that you will succeed so well as such a good gardener as Mr. Hunter does.

Manuring Roses (Idem).—Pig manure is excellent for placing over the roots of standard and other Roses in the open ground at this season of the year. Spread it 3 inches thick, and as far as the roots extend. If your Roses are not growing satisfactorily you may sprinkle the soil lightly with the mixture of poultry manure and soot before the other manure is applied; it may also be applied to Roses and most other crops during showery weather in spring with great advantage.

Acacia pubescens (Mrs. Gray).—This species is by no means common, and if this really is the one you have it might be increased by either layers or cuttings, but the latter is the better and generally the more successful mode of increase. The young half-ripened growths should be selected for the purpose, preparing them similarly to other cuttings, and insert them in a compost of finely sifted loam and abundance of silver sand in a well-drained pot. Cover the pot with a bellglass, and plunge it in a propagating frame in a temperature

of about 65° or a little more. The plant has been known in this country about seventy years, and therefore it is not a novelty. Many exotic plants fail to produce seeds under cultivation; some from the absence of insects that assist in transference of the pollen, and others owing to the pollen itself being so altered in its constitution as to no longer possess the requisite fecundating property.

Destroying Thrips (*C. P.*).—When plants are so much infested as yours appear to be much perseverance will be necessary to completely eradicate the pest. All the plants should be sponged with a solution of Gishurst compound, nicotine soap, or some other insecticide; or 3 or 4 ozs. of soft soap dissolved in a gallon of water, adding thereto a quarter of a pint of tobacco water, will answer your purpose. They should all either be repotted or have the surface soil removed, adding fresh compost; the pots should also be washed, and every portion of the woodwork of the house. In the spring the plants should be syringed once a fortnight with an insecticide, or be fumigated. By carrying out some such practice as this you may succeed in extirpating the insects, or so reducing the numbers that they will do little injury. The Vine rods should be washed with strong soft-soap water, brushing them thoroughly with the solution as hot as the hand can bear it.

Names of Fruits (*R. E. M.*).—We are sorry we cannot name either of your Apples. They are quite new to us. Are you sure they are not seedlings? The large conical one appears to be a good late variety. (*T. S. Ware*).—You have not put any marks on the specimens. The highly coloured russety one is Hambledon Deux Ans. The other two we do not know.

Names of Plants (*J. W. Collett*).—The specimen was very much withered, owing to its having remained in the post over Sunday, but it resembled an *Alonsoa*. (*G. Lee*).—*Oporanthus luteus*. See the reply to "C. M. Major."



POULTRY, PIGEON, AND BEE CHRONICLE.

BREEDS OF CATTLE ADAPTED FOR DAIRY FARMING.

(Continued from page 426.)

ALTHOUGH we have previously entered into some details connected with the breeding and rearing of cattle as well as their daily management we have still various comments to make upon the same subject. It is notorious that the experiences of dairy farmers are often contradictory, arising from causes which cannot be here all enumerated. Our remarks will, however, be based upon our experience, and also upon the evidence of the best dairy farmers. Sometimes we have heard the remark that surely such small matters of detail cannot all be essential to dairy management. To this we reply that they are necessary, and it is in neglecting them that many failures occur.

The regular breeding of cows is so important, not only for a regular supply of milk, but the quantity of it also, that nothing should be allowed to interfere with continuous breeding which it is possible to prevent by judicious attention. In some herds cows do not breed again until their calves are weaned; in others it makes no difference. The weight of evidence is in favour of the suggestion that it is the companionship of the cow and her calf rather than the fact that the cows are not hand-milked that delays their breeding; it follows therefore that the calf should be removed early from the dam. In the case of heifers, however, which suckle calves during the first year they should be allowed to do so only twice a day, and at the usual time of hand-milking. We are of opinion that some of our best cows ought to be milked three times during the twenty-four hours instead of only twice, for the flow of milk is often checked or cannot be retained in the udder, and is therefore wasted. We had an instance in our dairy of an Alderney cow which for a time produced sufficient milk to make 14 lbs. of butter per week; but we believe that 16 or more pounds might have been made if the cow had been milked three times instead of only twice, as the milk often passed away in a wasteful stream before the time of milking. Hand-milking is frequently very imperfectly done, and because the back teats of the udder usually yield most milk they are oftentimes milked out first; but practically both teats should be milked simultaneously, and for want of this precaution we often notice that the front

part of the udder yields but little milk, and the udder falls down behind into what is termed a *can-bagged* udder. This alteration of the shape, it is contended, diminishes the quantity of milk secreted in the udder; in fact, it is rare to see a good milch cow excepting the udder stands well forward. It is even stated that defects in the shape of the udder thus produced can be handed down to succeeding generations if such neglect and mismanagement has continued for any lengthened period. This, however, we believe to be based on a theory not generally acknowledged by practical men or supported by the skill of professional physiologists. Heifers with their first calf having any imperfections should be sold or fed for the butcher.

The general health of dairy cows will greatly depend upon the feeding and water, as well as occupying a healthy habitation in either boxes or stalls. We will take first the feeding, which must be regulated in a great measure by the way in which the milk is to be turned into money. If the milk is sold into the towns they may be fed upon inferior substances, having reference to the quantity of the produce rather than the quality, grains for instance being one of the best foods for a milking dairy, but by no means admissible in a cheese or butter-making dairy. Still the advantage of a milk-selling dairy has its value, for nearly every kind of vegetable produce will furnish milk for sale, whereas if made into butter or cheese it would seriously affect the flavour; in fact, this is one reason why so many inferior articles are found on the market, the milk from which they are made being impure, either from the effect of the food or bad and unwholesome water. Again, boxes or stalls with correct management are of the highest importance, for we have no right to expect that the animals can enjoy uniform good health, or that the milk can be obtained pure, whilst foul air prevails and circulates through the buildings, for there is positively nothing which is more susceptible of prejudice in its contact with ammoniacal vapour or impure air of any kind than milk, especially whilst warm and fresh. We shall omit observations here relative to the advantages of construction of the accommodation for the cows under cover, for we have recently considered the subject most fully under the heading of "Shed Accommodation for Cattle" in this Journal, and concluded on the 30th of September last, page 316.

Having now referred somewhat in detail to the management required to rear cows adapted for the dairy, we shall refer to the stock as offered for prizes at the recent Dairy Show. Most of our observations have partaken of comparisons between pedigree Shorthorns and those of an ordinary character, as fitted for dairy purposes. We find in confirmation of our own opinions that the pedigree stock at the Show received no prize in the milking competition. It is important and also interesting to notice the result of the award of these prizes for the best milkers which was arrived at on Friday the 29th ultimo, and which we extract from the *Agricultural Gazette*. "The trials being for quantity yielded per cow per day of twenty-four hours, with a comparison of the quality of the milk as determined by Dr. Voeleker's analysis. The first-prize Shorthorn cow "Daisy," being one of a pair which received the first prize in the second class of Shorthorned cows, shown in pairs (and not eligible for "Herd Book"), exhibited by the West London Dairy Society. This cow "Daisy," gave in two milkings in twenty-four hours 48½ lbs. weight of milk of very high quality, which latter merit carried the first prize. Mr. George Taylor's cow "Beauty," which obtained the second prize in the third class for Shorthorns, shown singly, and not eligible for the "Herd Book," yielded a still greater quantity—namely, 50½ lbs. of milk, but of quality somewhat below that of the other, thus lowering her to the second place. The first-prize Dutch cow gave 40½ lbs. of milk of good quality; and the second-prize Dutch cow 43½ lbs. of a lower quality. The first-prize Ayrshire gave 25¼ lbs. of milk; and the best Jersey 30¼ lbs. of milk. The rich quality

of the Jerseys and Guernseys, however, was so superior as to require a second analysis before the comparative merits of the competing cows could be determined." We hope to give the actual result in our next communication.

In Class 4, Ayrshires were only remarkable for the large entry by one exhibitor, who received all the prizes in this class. As, however, there was nothing requiring special notice relating to these cows, we shall refer the reader to the small quantity of milk just stated, as given by the one competing for the milking prize, which is not likely to give this breed any preference, except as hardy animals capable of withstanding an inferior climate, and yielding a fair quantity of milk whilst feeding upon herbage of inferior quality growing upon the moorland and mountains.

Class 5, Jerseys.—This breed of cattle is, we may say, next to the Shorthorns as dairy stock; in fact, in some situations they are superior in some respects, yet really they each possess a local standing, and both deserve it when it is considered the different climate and soils upon which they are kept, and the different circumstances by which they are attached to certain districts. We shall, however, consider more fully the points connected with the Jersey breed as dairy cows when we get Dr. Voelcker's returns of the quality of their milk as compared with other breeds. The show of Jerseys was, as might have been expected, very extensive, the first and second prize being awarded to Mr. George Simpson of Wray Park, Reigate, Surrey, who has now been celebrated as an exhibitor of Jerseys for many years, and he as yet maintains the first position in the kingdom as a breeder of Jersey cattle. There is, however, another breeder who was not far behind him, who took the third prize in this class of cows—namely, Mr. John Carders of Town Hill, Westend, Southampton, who exhibited two beautiful animals. The stock of either of these two competitors can be highly recommended to the notice of noblemen and gentlemen as possessing animals well calculated for the ornament of the park and pasture lands, and at the same time capable of yielding not only profit, but butter of the finest quality and colour. We propose next week to call attention to the Guernsey breed as dairy stock, and also other breeds, such as the Kerry and the cross-breeds, with a review of the practice of cross-breeding, &c.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—There has been serious hindrance to the horse labour of the farm lately, and there is but little Wheat sown; therefore this work must now be urged forward at any and every opportunity. Whilst we write the weather has become fine, and the land, all but the strongest flat-lying soils, is in good condition, the work should proceed without further delay. However, the weather cannot be trusted in November, which is the best month for sowing Wheat upon dry healthy land in a favourable climate; therefore the home farmer should not set out more seeding than can be done in a day, so that any sudden change to rain may not interfere with the finishing work. This, however, applies to the land which has laid previously ploughed. Upon the root land, however, where the sheep have recently fed off the crop, the land should be ploughed and sown simultaneously and none left unfinished in the evening, because the weather peculiar to this month is rain and frost by turns, or in succession, either of which will cause great delay unless the land is finished off as fast as sown. On some of the hill farms, either on the stone brash or chalk, the sowing of the lea ground is completed. The horses will in consequence be at liberty to return to the autumn fallows for the most part lying in an unfinished state. A few more fine days will enable the Howard's patent lifting drag to be used for combing out and loosening the heaps of couch and weeds, which the late rains have settled down so close that they cannot be collected with either the chain harrow or horse rake without being moved again. Where the land is clean the Wheat stubbles, &c., can be now deeply ploughed and allowed to lie during the winter months, and if the land is free from couch it will require no more ploughing in the spring. It may be made a perfect tilth by the action of the scarifier, lifting drag, &c., and prove in excellent condition for seeding the root crops, also Barley at the earliest period. We ask the home farmer to remember the number of fields last spring which were ploughed several times, and at the seed time the weather proved so dry that the Mangold seed vegetated most irregularly, and the crop is deficient in consequence. This is so often the case that whether the season proves wet or dry the land which requires no ploughing in the spring is sure to be in the best condition for sowing early with either Barley or root crops.

Hand Labour.—Work peculiar to the winter months will now prevail, but that which must be done first is the pulling and storing roots in the field by pitting and covering them with earth. The Swedes which will be required for the sheep during winter and spring, for those which are pitted in good condition are always better for sheep than those which have been left in the land, as either the action of frost or the production of new roots depreciates the feeding value. The major portion of the Mangold crop has been carted off the land and heaped or stored away for use. When grown within

reach of the seashore the ordinary seaweed is the best covering for the heap, as it affords better protection from frost than any other material, and requires less earth on the outside of the heap. Most of the stock fairs for sheep have been shortly supplied, and although sheep have maintained full prices yet they would have been still higher had the price of corn been more remunerative, as there is one of the best root crops on all soils we can ever remember. Shepherds must not give their in-lamb ewes too many roots, and a fair allowance of hay will be more than ever necessary. Unfortunately a large portion of the field hay has been very much damaged, but where the substances used for flavouring were added to the hay when being stacked it is found that sheep eat it much better, being attracted by the aroma imparted to the hay. Fattening sheep have made good progress lately upon all dry land, but the quality of the hay being deficient much more cake than usual has been used for feeding, about a pound per sheep per day being considered a fair allowance. Cattle in the boxes have capital roots to thrive upon, but these will require, if used for fattening cattle, not less than 4 lbs. of cake in meal with 2 lbs. of bean or barley meal added for each animal per day, and strewed over the cut roots at feeding time. Cut straw will then be sufficient without hay, and a moderate quantity of roots, not exceeding 56 or 60 lbs. per day each, according to the size of the animals. The horned Dorset and Somerset ewes are lambing fast, with many twins in a healthy state, but more lambs than usual will this year fall in the month of November, and it is the best month for lambs to come intended for the general early trade in the metropolitan market, as well-fed lambs will be ready to kill at twelve weeks old.

REPORT OF THE PROCEEDINGS OF THE POULTRY CLUB—OCTOBER, 1880.

WE desire, as your Committee, to lay before you some account of the proceedings of the Poultry Club from the date of our last report up to the present time. Your Committee has since then met ten times. You will remember that in that report we recounted the steps which we had thought it necessary to take during the previous year for the suppression of trimming and dishonourable practices in the exhibition of poultry; these included the permanent or temporary disqualification of several exhibitors from showing at all shows held under the Club rules. We are now glad to inform you that, as far as we are able to judge both from our personal experience and from the reports of some of the most competent poultry judges, these steps have had a very marked effect in suppressing trimming and promoting honourable competition. During the past year we have in no single instance had the unpleasant necessity of disqualifying any exhibitor; and the late Mr. E. Hewitt, whose loss we all deplore, stated after judging at the last Crystal Palace Show that he believed there had never been a great exhibition at which the birds were more honestly shown; he likewise in a letter addressed not long before his death to the Honorary Secretary of the Club warmly eulogised the course it had pursued, which in his opinion had much contributed to this desirable change. Since our last report about a dozen shows have been held directly under the rules of the Club. In many other schedules the most important clauses of them have been adopted; indeed hardly a schedule can now be found in which the rules against dishonourable practices are not worded with far greater precision and stringency than they were at the time of the Club's formation.

The Club has of late been applied to in several cases to give pecuniary aid by guarantee or otherwise to shows held under its auspices, and we have thought that the state of its finances justified our acceding to these requests. As many such seem likely to be made we have appointed a sub-Committee consisting of Messrs. A. Darby, E. Pritchard, and the Rev. W. Serjeantson to consider and advise upon all such applications. In our last report we gave our opinion that before long the Club would be in a position to undertake the management of a large exhibition. Communications received from many members led us to believe that there was a general wish that this should be done. Last April an opportunity seemed to present itself. The Council of the British Dairy Farmers' Association opened a negotiation with us with a view to our undertaking the entire management of the Poultry and Pigeon Show to be held in October in the Agricultural Hall. A long correspondence ensued between the Secretary of the British Dairy Farmers' Association and the Honorary Secretary of the Club, which ended in a definite offer being made by the Association to the Club. A special Committee meeting was held on May 24th at Oxford to consider this and other pressing matters; but when it was found that the dates of this proposed Show and that of the Oxford Show clashed the following resolution was passed—"The Committee having considered the offer of the British Dairy Farmers' Association that they should undertake the management of their Poultry Show, regret that they are unable to do so. Had the Show been held at any other date than that always fixed for Oxford their decision might have been otherwise; but they think that Oxford deserves too well of poultry fanciers to justify them in undertaking a Show which must injure its prospects."

We regret that circumstances prevented the carrying-out of a scheme, which, but for this unfortunate fixture would, we believe, have given general satisfaction to the Club, but expect to be able almost immediately to announce that arrangements have been made for holding a show in January under the management of the Club. For some time past the labours of your Committee have been

constantly on the increase from the number of disputes among fanciers which are submitted to their arbitration. The fact that they are so submitted, and that, too, sometimes by fanciers who are not members of the Club, is naturally gratifying to your Committee. To publish any list or details of them would be obviously inexpedient. In the majority of cases prompt settlements or arrangements are effected through the intervention of the Club, and ready acquiescence has been given by both sides to its decisions. In one case unfortunately this has not been the result, and a dispute has been dragged into publicity: we allude to the controversy arising from the Hemel Hempstead incubator contest. We do not wish to reopen the question, but as garbled accounts of our action and decision have appeared in print, we inform you very simply what we decided and what we declined to decide in the matter. In the charges submitted to us two points seemed much confused—viz., imputations against the general management of the contest, and imputations against more than one member of our Club in some way connected with the contest. We endeavoured to separate the two, and concerning the latter entirely exonerated the gentlemen in question; concerning the former, from the many contradictions in the statements of the two parties, and our want of power to examine witnesses on oath, we refused to give judgment.

Other important questions have from time to time been brought before us, especially that of a new standard of excellence for poultry, which we consider rather subjects for discussion at a general meeting than matters to be decided by a Committee. We shall therefore endeavour to have them brought forward at the general meeting during the Crystal Palace Show, when we trust to see a large number of the members of the Club and other fanciers.

POULTRY CLUB MEETINGS AT THE CRYSTAL PALACE.

MAY I announce through your columns the arrangements for the meetings of the Poultry Club during the Crystal Palace Show? The first committee meeting will be held in my room at the Crystal Palace Hotel at 5 P.M. on Monday the 15th inst. The general meeting will be held at 4 P.M. in a room adjoining the Marble Hall in the Palace. This room is near the entrance to the Palace from the low level station. As on a former occasion the Marble Hall was found intolerably cold, I may mention that the room will be warmed. To this meeting all fanciers, both ladies and gentlemen, are invited, and questions of much interest will be discussed, and the undermentioned resolutions will be submitted.
—O. ERNEST CRESSWELL, *Hon. Sec.*

RESOLUTIONS.

To be proposed by Mr. A. Comyns. To be seconded by Mr. O. E. Cresswell:—

That the following be added to the rules of the Club:—

"That, except as hereinafter provided, every candidate for election as an officer or committeeman shall be nominated with his own consent by at least two members of the Club; that notice in writing of such nomination be sent to the Secretary at least a fortnight before the election, and that a list of the names and nominators of such candidates be furnished to each member with his voting paper; that retiring officers and committeemen who have not signified their unwillingness to serve again be eligible for re-election without nomination, and that the number of votes obtained by each candidate be published after the election."

To be proposed by Mr. A. Comyns:—

"That a copy of the rules of the Club, with a circular specially directing attention to the objects thereof, be sent to each person whose name appears in the poultry section of the 'Fancier's Directory' for 1880."

To be proposed by Mr. S. Lucas. To be seconded by Mr. A. Comyns:—

"That a circular be sent to the secretaries of the various poultry shows in United Kingdom requesting them to communicate with the Secretary of the Club as early as possible as to the dates of their shows in the season 1881-2, with a view to ascertain if, and how far, any of such shows are likely to clash, and, if possible, to obviate such clashing."

To be proposed by Mr. L. C. C. R. Norris. To be seconded by Mr. A. Comyns:—

"That a circular be sent to the principal railway companies throughout the kingdom directing their attention to the various abuses existing as to cost of carriage, rough handling of birds, and other similar points, and requesting the application of remedial measures."

To be proposed by Mr. A. Comyns. To be seconded by Mr. E. Pritchard:—

"That the Committee be requested to formulate a scheme for the increase of the number of the Committee by the addition of sufficient leading fanciers in London and the other important local centres of the fancy, to allow of the formation of a quorum for the transaction of the business of the Club in each local centre. The Committee be empowered to form sub-committees of its own members, and to delegate to such sub-committees the power of deciding any question or cases which it may think fit. That the Committee be empowered

from time to time during the year 1881 for the purpose aforesaid to order that the number of the Committee be increased. That any new members to be added to the Committee be elected in the usual way by the Club."

To be proposed by Mr. H. J. Storer:—

"That in the opinion of this meeting it is desirable, when the funds of the Club will admit thereof, that a club room be hired in London for the use of members at least one night in each week."

To be proposed by Mr. O. E. Cresswell. To be seconded by Mr. A. Comyns:—

"That in the opinion of this meeting it is desirable that a standard of excellence be prepared by the Committee."

To be proposed by Mr. E. Pritchard. To be seconded by Mr. L. C. C. R. Norris:—

"That in the opinion of this meeting it is desirable that a Club Show in London, or some other large town be held in the autumn of 1881."

Question to be asked by Mr. A. Comyns:—

How many committee meetings have been held during the past year, and how many of such meetings have been attended by each member of the Committee?

VARIETIES.

THE GOVERNMENT AND IRISH FARMERS.—At a recent meeting of the Kildysart Board of Guardians, a communication was read from the Local Government Board consenting to the postponement for twelve months of the payment of the first instalment of money advanced for the purchase of Potatoes and Oats, under the Seeds Act, during last spring. The farmers are highly pleased at this concession.

— ENTOMOLOGICAL SOCIETY.—At the last monthly meeting of the Entomological Society Sir John Lubbock exhibited some interesting larvæ, which Mr. Calvert had forwarded to him from the Troad, through Sir J. Hooker. These larvæ have recently appeared there in great numbers, and are likely to prove most useful, as they feed on the eggs of locusts. Sir John Lubbock thinks that they are coleopterous, and probably those of a beetle belonging to the same family as the *Cantharis* or Blister beetle. Mr. Riley has recently described the transformations of certain insects belonging to this group, and natives of the United States. The young larvæ when they leave the egg are thin active little creatures, which eat their way into the cases or "pods" (as they are called from their shape) of locusts' eggs, where they rapidly grow into flat fleshy grubs. Mr. Calvert states that in his neighbourhood a large proportion of the locusts' eggs have this year been destroyed by these larvæ. If the species does not exist in Cyprus it might be well worth while to introduce it there.

— THE ROYAL AGRICULTURAL SOCIETY.—At the meeting held on the 3rd inst., at which the Prince of Wales and an influential company were present, it was decided, on the recommendation of the Implement Committee, to offer a gold and silver medal for the sheaf-binding machines which, after a trial during the harvest of 1881, the judges consider the best and second best, the binding material to be other than wire. Letters were read from the Secretary of State for Foreign Affairs respecting a national convention of sheep husbandry at Philadelphia, and an international sheep show at Mecklenburg. A letter was read from the Countess A. de Noailles, offering a prize of £20 for an essay on the benefit to flocks and herds which would accrue from giving them access to running water to drink in place of stagnant ponds, and it was resolved to accept this offer. Reports of various standing committees were received and adopted. A discussion took place with reference to the importation of cattle from Ireland affected with pleuro-pneumonia; and on the motion of Mr. Bent, seconded by Mr. Wakefield, it was resolved "that the President of the Society be requested to call the attention of the Privy Council to the letter received from the Clerk of the Peace of the County of Cumberland relative to an outbreak of pleuro-pneumonia which occurred in a cargo of cattle lately landed at Shilloth, and that he should urge upon the Privy Council that more stringent regulations and more careful inspection of imported Irish cattle is requisite both at the ports of embarkation and arrival."

— BEES AND CLOVER.—Bees are necessary to the fertilisation of some kinds of Clover. This fact the New Zealand Government have discovered to their great dismay, for the Dutch Clover in that colony will not produce sufficient seed owing to the absence of the

particular bee necessary to fertilise it. Again, it has been found that twenty heads of Dutch Clover yielded 2290 seeds; but twenty other heads, protected from bees, yielded none. In like manner, a hundred heads of Red Clover produced 2700 seeds, but the same number protected from the visits of insects were all sterile. Hence it may be logically inferred that as no other insects visit the Clover, were the humble-bee to become extinct in England the plant which is dependant upon it for existence would either become extinct or at least comparatively rare.—(*"Flowers and Insects," in "Science for All" for November.*)

— **ACORN POISONING.**—We draw the attention of our readers to the dangers which beset cattle at this period of the year, when, as now, acorns are being scattered over the pastures in bushels, and young stock are still at large. During the past summer the Oak has produced an immense crop of fruit, so much so in some instances as to bend and even break down huge branches from their trunks. It will be remembered by some at whose expense our experience of acorn poisoning was acquired that in 1868 and 1870, and on several subsequent occasions, large numbers of cattle succumbed to the poisonous effects of Oak "mast," and many more were so far emaciated and otherwise damaged by disease as to require much time and costly care to restore them to a thriving state. Moreover, dairy farmers sustained serious losses, not only in the diminished supply of milk which followed the unrestrained use of acorns, but also in the wholesale slinking or abortions which the same cause provoked. When well harvested and properly served out, acorns constitute a useful article of diet for all kinds of stock, and, with ordinary care, no ill consequences should follow their use. It is more especially the fresh unripe fruit in which the noxious principle predominates; hence acorn poisoning is most prevalent early in the season, when sharp frosts and strong winds have dislodged them from the trees before maturity has been reached. Besides the astringent and poisonous acid contained in acorns, there is also the indigestible husk, or shell, which renders their too free use perilous to stock at all times. When it is remembered that nearly 50 per cent. of animals attacked with this disease succumb to its effects, the present luxuriant crop of acorns may be contemplated with fear as well as with profit. To be forewarned is to be forearmed, and if reasonable precautions are exercised at once no loss need be suffered. The removal of the offending agent is all that is required. Itinerant gatherers should be encouraged, where acorns abound, or boys told off specially to pick up the fruit as it falls. Young stock being most susceptible of acorn disease should not be allowed in the pasture until the bulk of the mast has been removed.—(*Agricultural Gazette.*)

— **CASELL'S MAGAZINE OF ART.**—Messrs. Cassell & Co. have sent us the first part of this work of which it is scarcely possible to speak too highly. It is of large quarto size, contains forty-eight pages of engravings and letterpress, the paper, type, and engravings being of excellent quality. The frontispiece is an admirable etching of Erskine Nicol's painting "The Trio." One shilling is unquestionably a moderate price for such a fine production as this undoubtedly is.

NEW AND OLD PRACTICES IN BEE-KEEPING.—No. 3.

CAREFUL investigation leads to discovery in many instances, and in bee-keeping new ideas are obtained and new practices introduced. Let us examine and compare two.

One is the practice of utilising old comb, of cutting it out of one hive and fixing it in another. Of late years this practice has been strongly recommended by one of our schools. The teaching in support of this practice is to the effect that if old combs be given to bees and fixed in their hives, they will be saved the trouble and expense of wasting honey for material or wax to build fresh combs. This is very plausible teaching and reasoning, for it is well known that new combs are costly, both to bees and bee-masters, in their erection. The task that a swarm of bees imposes upon itself on entering a large hive, filling it with combs, brood, and honey, is not a small one. The labour of the task is prodigious, but they willingly undertake the work and carry it out, weather permitting. The question for discussion is, Would old combs assist the bees? If their hive were filled or half filled with pieces of second-hand combs, would the bees thrive better and gather more honey, or rather store up more? This is an important question, deserving the careful attention of all earnest bee-keepers.

I disapprove of the use of old combs, especially of artificially refixing them in other hives after removal from their own. Such refixtures are greater hindrances than helps. In some few instances the combs of swarms that perish in winter may be profitably used by putting swarms amongst them on the following season. Even such young combs as these I should not remove for refixing.

The other modern practice which I have alluded to is quite the reverse of this—viz., the destruction of combs while they are comparatively young. Both profit and health are at the bottom of this practice. I follow and recommend it in great harvests and honey seasons. Why? Because in such seasons the yield of honey is very great, and stocks made of two swarms united and sugar-fed are cheaper and better than heavy honey stocks. Mr. Edward Thorp of Sale adopts this practice. He is an amateur, and of course keeps bees for pleasure, but he manages them well and profitably. His stock is reduced to two hives. Last spring or summer he sold one swarm for 20s., the other five were kept for honey. All their combs were destroyed in September, and in their destruction they yielded 105 lbs. of honey and honeycomb. The run honey was sold for 1s. 3d. per pound, and the comb for 1s. 6d. per pound. The bees of the five hives are now being fed into three stocks by giving them 72 lbs. of sugar made into syrup. One of the stocks will be sold, which, doubtless, will realise more than the cost of the 72 lbs. of sugar divided amongst the three. We see that by Mr. Thorp's mode of multiplying his stocks in summer and destroying their combs in autumn, his income from two stocks (originally) is more than £7. I know not what his expenses were in spring-feeding and in sending his hives in August to the moors; but, considering the season of 1880, I estimate that one swarm sold and 105 lbs. of honey obtained is a good return from two stock hives. Besides, by following this practice year after year Mr. Thorp will never have foul brood in his own apiary. I ask the reader to ponder on his example and success, and compare results.

Many collateral points claim attention when the question of comb-building and comb-destruction are considered. On the question of swarming and non-swarming, of supering and non-supering, there is great diversity of opinion and practice among apiarians. All, or almost all, have some reason on their side. In some districts there is no Heather, honey-gathering ends with July, and the bee-keepers there naturally do not want swarms to waste their time in building combs that are never filled, but adopt the non-swarming and supering system. Others who have had abundance of super honey during a favourable season may think they have found out the real secret of success. Such earnestness is pleasing, but it is well to temper zeal with wisdom and experience. How are old black combs to be disposed of, and when? How are the young sweet combs to be obtained, and when? In the absence of swarming, where do young queens come from? These points are not forgotten in well-managed apiaries, and practices are modified to suit seasons and circumstances. But it should be borne in mind that the wax in supers is as costly as the wax in swarm hives. The question is, How to obtain most honey or profit? My prejudices are based on experience and success, and year after year they grow stronger and stronger in favour of the old practice of swarming. This system I prefer for both honey and honeycomb, and the reason for it is this: On the swarming system of management the bee-master has always plenty of bees in autumn to make his hives doubly and trebly strong. Autumnal unions of swarms make hives strong for work of all kinds, and this is the secret of success in all apiaries. Being now unequal to garden work I am trying to sell my place. If it be sold I will devote my time to keeping bees and manage them on the swarming principle.—A. PETTIGREW.

PROTECTING BEES—PRODUCTS OF BAR-FRAME HIVE.

It will not do for us to put our bees in houses the same as the Americans do, but above all things we must keep them warm. If they are well wrapped up in hay and well ventilated there is no fear of their sustaining injury. I have eighteen stocks placed in winter quarters; they are wrapped in hay. A board is put up in front to keep the sun from shining too early on the mouth of the hives. In the event of snow I shall place the board straight in front to protect the mouth from the reflection of the sun when shining on the snow, which often brings the bees out only to fall down and never return. This board is a great saving to the bees, and it should be put up now.

I have taken up all my Crocuses, and put them in boxes to have them in bloom early, so as to afford pollen for early breeding. I have read the article in the *Journal of Horticulture* on the

great harvest of honey at Carluke. I suppose the Carluke men would weigh the straw skeps along with their honey and perhaps their floorboards, so that would bring the yield down a little, say six skeps at 7 lbs. each would be 42 lbs., which deducted from 474 would leave 432, and if they weighed the floorboards they would average 6 lbs. each; that would be 36 lbs., leaving a nett weight of honey 396 lbs. More than this can be realised from the bar-frames if you give them room and extract Clover honey in its season. I had not my extractor in time this year, else I should have had a better turn-out of honey. There is no mistake but their hives were good; but what would their honey look beside good squares of honeycomb that could be sent all over the world without packing? and another very important point—we can have our honey in the market early. I had some for sale in June. We can supply all the markets with honey before they would take theirs to the Heather, and I have no doubt that the time will come when they will have to give up their straw skeps for this reason—that they will not find a market for honey. For instance, in Dalbeattie we had all the people supplied with honey before the Pettigrews with their straw hives could come in with their produce. When they did come they could not sell it, and were offering it at 2s. 3d. per quart. How does this look alongside 3s. and 3s. 6d. per quart, which I readily obtain?

After reading the article about the Carluke bee-keepers I looked up my book to see if I could find a yield anything like that recorded, and I send what I have found. Mr. Pettigrew will find some good hives about Dundee; at least from what I hear at Kelso, I should not be surprised to see them sending in records of 200 lbs. out of one bar-frame hive, not saying anything about swarming. Mr. Steele of Dundee told me he could make £6 of every hive he has in his apiary—that is, £2 a year more than any of the Carluke men obtain.

I will now give you the account of my hive, but I wish to say they were not all like this one, as I had neither honey nor swarms from one. The reason of this was a bad queen, but I gave the bees one, so expect better results next season; the rest did very fairly. There was one or two at the end of the season that after working well did not kill their drones; this means queenlessness, so I gave them queens, and the next day they drove out their drones. On the 16th of May I put on twenty-four sections, supers, and on the 16th of June I had a swarm of this stock, so that I had to take off the supers; there were fifteen of them, weight 1 lb. each. On the 24th June it gave a east or second swarm, equal to many first swarms, and on the 1st July it gave a third, which I returned after taking the queen from them; I then put on supers to nearly the end of the season, when the amount of super honey was 50 lbs. I then turned up the box and cut out 16 lbs., and now it weighs 54 lbs. The total weight from the old stock not including wood would be 120 lbs., then the swarm from the above hive worked very well, and before the Heather honey came in I extracted 30 lbs. from the combs. I returned them and had them refilled in sixteen days; I put on supers, and at the end of the season I had taken 69 lbs., and the frame that was refilled with Heather honey that could not be extracted with the extractor weighed 34 lbs.; the total for this swarm was 135 lbs. The east or second swarm was only eight days behind the first, and gave 61 lbs. in supers and 62 lbs. in stock hives, it has now 10 lbs. of honey and 20 lbs. of sugar for the winter. Total weight of honey in the second swarm will be 133 lbs., so the grand total will be—old stock, 120 lbs.; first swarm, 135; second swarm, 133; total, 388. This does not include frames or supers, only the honey that came out of them.—J. THOMSON.

BEES AND HEATHER.

THE report of Mr. Pettigrew, published last week, of the successful bee-keeping of Mr. Lindsay, has made some of us mid-country apiarists quite jealous. Our pasturage here is chiefly white Clover, and this season as soon as that was ready rain fell nearly every day until the Clover was over, so that a surplus with us, only in exceptional cases, is quite out of the question. I have been thinking if we could take, say, six or eight stocks to the Heather for a fortnight in a fair average season, and have our usual ten or fourteen days' holiday with the bees, they would if the weather were at all favourable not only pay our holiday expenses, but leave a handsome profit besides. When Mr. Pettigrew finds time I hope he will give us his opinion about this, and also direct us to the nearest fields of Heather.—C. F., Leicester.

OUR LETTER BOX.

Pigeons for Table (E. C. O.).—The smaller Runts are excellent for the table. We say "smaller," because the present exhibition Runts are too large to

breed well and are bad parents. Archangels, too, are excellent breeders and good birds for eating, and have the additional merit which Runts have not, of being very active, and so escaping from cats and other enemies. It is a good time of year for establishing whichever kind you may choose.

Doves Unhealthy (Idem).—The probable causes of your young Doves being weak in legs are either in-breeding or the parents not being supplied with sufficient bone-making and digestive food. Give them plenty of road grit and old mortar broken up. If you have bred much from the same stock procure some fresh birds from another strain and cross them with your own. We have seldom in our own aviary had young Doves suffer in the manner you describe, but we once gave away a related pair, the produce of which were again in-bred, and the result was leg-weakness and paralysis in nearly all the young birds.

Canaries Afflicted (Mrs. Brettingham, Colchester).—Your hen Canaries certainly are in a very sad condition, and there are but little hopes of your keeping them alive for breeding with next season. It is a very bad sign when they become so ruffled in feathers, roost upon both legs, and fall off in their appetites. The birds have become affected over their moulting. They do better with plenty of room for exercise and water to bathe in over their moulting, which has a beneficial effect during the casting of old and the pushing out of their new feathers. The discoloured veins and appearance of their stomachs show signs of inflammation, and unless they are removed into a warmer temperature they will speedily die. Hold the birds over a vapour bath for three or four minutes, and the moisture and warmth will ease their bowels. Give to each one drop of castor oil, and likewise rub their stomachs and vents gently with a little of the oil on the end of your finger or with a small camel's-hair brush. Supply a bread and milk diet, in which mix a couple of grains of magnesia. If the birds become somewhat convalescent after the above treatment add to their drinking fountain a few drops of brandy, and keep them free from draughts.

Bees in Winter (Busy).—The doors of the hives should be contracted to keep out mice except when snow is on the ground. In cold and severe weather bees do not come out; in mild winter weather they leave their hives about mid-day for exercise and for purposes of cleanliness, and these occasional winter flights are good for them. If the doors of hives are kept closed all winter much harm is done and many lives lost by the bees struggling to get out in mild weather. If kept by bad weather or closed doors for many weeks together in their hives there are heaps of dirt and dead bees formed inside, which are disagreeable to creatures so sensitive of smell as bees. Your house is a good protection to your hives. Let the small holes in front be large enough to enable the bees to carry their dead out, and place some soft hay round the hives to keep the bees comfortably warm in winter.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
1880.	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
Oct.		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Nov.										
Sun. 31	Inches.	deg.	dcg.	W.	deg.	dcg.	deg.	deg.	deg.	In.
Mon. 1	30.109	39.7	36.8	—	42.2	51.0	31.8	88.5	27.6	—
Tues. 2	30.199	42.4	39.3	N.E.	42.8	44.1	40.1	55.2	34.3	—
Wed. 3	30.189	32.1	30.8	N.E.	41.9	43.8	27.3	73.2	25.2	—
Thurs. 4	30.185	37.9	36.3	N.E.	40.7	47.4	31.7	89.6	28.1	—
Friday 5	30.422	36.4	34.4	N.N.E.	40.3	45.7	30.7	86.6	26.1	—
Satur. 6	30.370	34.5	34.5	N.W.	39.6	46.3	30.6	59.3	26.9	—
	30.388	43.8	43.0	S.W.	49.1	51.7	34.0	65.4	30.4	—
Means.	30.266	38.1	35.4		41.1	47.1	32.3	74.0	28.4	—

REMARKS.

- 31st.—White frost in morning; cold bright day and windy.
 1st.—Fair, but overcast throughout.
 2nd.—Thick white frost, very cold morning, fine day, with bright sunshine in forenoon.
 3rd.—Cold day, with very bright sunshine and much wind; aurora 8.25 P.M.; bright starlight night.
 4th.—Fine with bright sunshine; foggy between 5 and 6 P.M.; clear starlight evening.
 5th.—Thick fog in morning; milder day; much cloud.
 6th.—Slight fog in morning; mild day, and fine, with sunshine from noon till 3 P.M.
 Generally cold and dry, with high barometer.—G. J. SYMONS.

COVENT GARDEN MARKET.—NOVEMBER 10.

TRADE keeps very quiet. Consignments of Apples from America and Canada continue. Home-grown fruit is now beginning to fall off in supply, the bulk of the crop having changed hands.

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	4	0	Mushrooms.....	dozen	1	0	1	6
Asparagus.....	bundle	0	0	0	0	Mustard & Cress.....	punnet	0	2	0	3
Beans, Kidney.....	½ lb.	0	0	0	6	Onions.....	bushel	3	6	5	9
Beet, Red.....	dozen	1	0	2	0	pickling.....	quart	0	0	0	0
Broccoli.....	bundle	0	9	1	6	Parsley.....	doz. bunches	6	0	0	0
Brussels Sprouts.....	½ sieve	1	9	2	3	Parsnips.....	dozen	1	0	2	0
Cabbage.....	dozen	0	6	1	0	Peas.....	quart	0	0	0	0
Carrots.....	bunch	0	4	0	6	Potatoes.....	bushel	3	9	4	0
Capsicums.....	½ 100	1	6	2	0	Kidney.....	bushel	4	0	4	6
Cauliflowers.....	dozen	0	0	3	6	Radishes.....	doz. bunches	1	6	2	0
Celery.....	bundle	1	6	2	0	Rhubarb.....	bundle	0	4	0	0
Coleworts.....	doz. bunches	2	0	4	0	Salsafy.....	bundle	1	0	0	0
Cucumbers.....	each	0	4	0	6	Scorzonera.....	bundle	1	6	0	0
Endive.....	dozen	1	0	2	0	Seakale.....	basket	0	0	0	0
Fennel.....	bunch	0	3	0	0	Shallots.....	½ lb.	0	3	0	0
Garlic.....	½ lb.	0	6	0	0	Spinach.....	bushel	3	0	0	0
Herbs.....	bunch	0	2	0	0	Turnips.....	bunch	0	4	0	0
Leeks.....	bunch	0	3	0	4	Vegetable Marrows.....	each	0	2	0	0



18th	TH	Shrewsbury and Kingston Chrysanthemum Shows.
19th	F	Croydon and Maidstone Shows.
20th	S	Hull Cattle Show.
21st	SUN	26TH SUNDAY AFTER TRINITY.
22nd	M	
23rd	TU	Northampton and Liverpool Chrysanthemum Shows.
24th	W	Birmingham Chrysanthemum Show.

LILY OF THE VALLEY.

IT is questionable if any other flower is so generally popular as the Lily of the Valley. No other possesses such delicate charms, none is more useful, and none so much sought after by all classes, the Rose excepted. The flowers are doubly welcome when they are produced months before their ordinary time, which can be accomplished with ease and certainty if a proper system of cultivation is followed, and these notes are intended to show that a succession of Lilies of the Valley can be maintained for seven or eight months. The length of time the outside supply lasts depends upon the situation the plants occupy, and upon the season. To maintain a supply from the commencement of the new year is by no means difficult, as imported single crowns and clumps from the Continent can be had in flower in abundance during January, and by hard forcing flowers may be obtained by Christmas. On more than one occasion newly imported plants have been introduced into strong heat here as soon as they arrived, but they did not start for months afterwards, and some of the plants produced their flowers the following July and August outside. This is sufficient proof that the Lily of the Valley cannot be forced until it has received a thorough rest. How can these imported plants be expected to bear flowers nearly as soon as they arrive? They are taken up as soon as they show signs of rest, and many of the leaves are upon the plants when they arrive prematurely ripened by the journey. It is unreasonable to suppose that plants receiving scarcely any rest will start satisfactorily and produce good flowers by subjecting them to the strong heat of forcing houses.

For some years past I have carefully read the various gardening periodicals, and I do not remember seeing any statement of these flowers being produced at the beginning of November until I recorded the fact in the *Journal of Horticulture* in 1878. They can even be produced by the last week in October if an effort is made to have them thus early without adopting extreme measures in forcing. Imported roots will not produce flowers during November, and to accomplish this plants must be grown in pots and assisted after flowering to make an early growth so as to receive an early rest. If a number of imported clumps or strong home-grown plants from the border are potted in good loam, a seventh of manure and sand, and forced after the new year, the foliage can be had with the flowers, which is essential to the plants if they are to produce their flowers again in early autumn. Some little care

must be taken that these plants are not seriously checked while flowering, nor must they be placed outside or in cold frames and neglected after flowering, which is frequently the case. A vinery or warm Peach house is suitable, and a light position should be afforded the plants until growth is completed and matured. They can then be placed outside in a sunny position to thoroughly ripen their crowns, which must not, however, be done by withholding water to induce premature rest. Liberal feeding should be resorted to while the plants are growing and until the growth is completed, the crowns plump, and the foliage becoming yellow. They should not suffer through insufficient supplies of water during any stage, and after the foliage has fallen the plants can remain outside resting until they are required for forcing; but they must not be allowed to become dust dry at any time.

After the plants have had a good rest forcing can be conducted without trouble. This season plants so treated were plunged into tan, the crowns being placed about 2 inches below the surface, and the bottom heat ranged at about 85°, scarcely ever varying, and the flower sprays quickly appeared and were gathered here on the 3rd of the present month. As soon as the flowers appear through the tan it is removed from around the crowns and inverted flower pots are placed over them, stopping-up the hole in the pot for a few days. This assists in drawing the flowers well up, which should afterwards be gradually exposed to the light, and they will increase in size, substance, and fragrance.

This system of early forcing will year by year spoil some of the plants, so that an annual preparation of a number is needed. When the flowers come first the foliage afterwards is naturally weak. These early-forced plants must be carefully hardened, and when frost is past plant them outside where they can remain for two years to thoroughly recover their strength, and a number of plants forced after the new year should again be grown on for the following autumn. Plants from the outside when well established can be lifted, and either placed in pots forced upon beds of leaves or laid upon vinery borders, and a little soil scattered amongst them until their flowers are produced. It is a good plan to place the roots in shallow boxes in vineries afterwards; they are much more readily removed to harden off again before planting out. By introducing them in boxes for cutting, potting-up a quantity in pots and introducing them in batches, it is easy to maintain a succession until flowers can be had outside. Lily of the Valley will succeed in pots for a number of years providing the drainage is kept good, the plants not subjected to too early forcing, and being well supplied with liquid manure while growing, so as to produce stout foliage, which is the precursor of bold crowns.

To have a good supply of these flowers outside as long as possible, it is necessary to plant in different aspects, some in a sunny position, others again to succeed them, and for the last supply plant in a northern aspect. The ground should be liberally manured, and in autumn after the foliage has faded some short decayed manure may be thinly spread amongst the plants with much benefit to them the following season. During dry weather a good soaking of water may be given, and occasional supplies of liquid manure. The outdoor treatment is very simple, and it is easy to prepare a few plants annually in Peach houses or vineries to supply early flowers through

November and December ; after that period the production of flowers is comparatively easy.—WM. BARDNEY.

APPLE AND PEAR TREES WHICH CANKER AND WHICH DO NOT CANKER.

It may, perhaps, serve a useful purpose for me to give a list of the Apple and Pear trees which I find either are apt to canker, or which are free from that injuring and deforming disease. The time of planting is again upon us with its pleasures and hopes. I say pleasures, for I own to feeling very pleased when I receive my annual bundle of young trees. I undo them in a flutter, and examine each, its growth, its shape, its size. I always assist at the planting itself, seeing that my man plants and not buries, and that he treats the tender infants with every care, avoiding all rough usage. I own to having pleasure when I see a new comer safely and uprightly in the soil. There is, however, the future to think of. Will the tree grow, fruit well, and will it be free from disease? Of diseases I will now speak only of canker. My soil and climate are good ; the former loam on a sandy clay, the latter that of the Bath district, and my garden is on a south-west slope and well drained ; yet some trees canker and some are wholly free from this disease.

Side by side stand a Dumelow's Seedling and a Striped Beefing. The first is perfectly healthy, the second badly cankered. I would say as to Dumelow or Wellington I do not know its equal in all respects, and think better of it each year. Worcester Pearmain free from canker, Beauty of Kent dies of it. Loddington Seedling perfectly healthy, Joaneting cankers a little. Lord Suffield free, so Duchess of Oldenburgh, but not entirely free is Margaret. Irish Peach, best of all summer dessert Apples in every respect, is perfectly healthy. Emperor Alexander, Cox's Orange Pippin, Summer Golden Pippin, New Hawthornden, healthy ; while Cox's Pomona, Golden Pippin, and Betty Geeson all canker slightly, the Pomona the worst. Lewis's Incomparable free, so also Gravenstein, but not quite free Sturmer Pippin. Annie Elizabeth healthy, while old Hawthornden cankers worst of all. Yet who would be without it? I find it lasts and fruits well about twenty years and then dies of canker. Keswick Codlin, Ecklinville Seedling, Warner's King, and Stirling Castle all free. I consider Ecklinville Seedling one of the best possible Apples—hardly eleven others equal to it. Stirling Castle is a charming little fellow, bearing almost too abundantly, but is a picture in blossom and with fruit. Gooseberry Pippin cankers badly, so Cellini, but not so Peasgood's Nonsuch, Tower of Glammis, and Bedfordshire Foundling.

Next I come to Pears, and how much I wish that people would not overpraise so many varieties of these fruits. I sometimes think that writers pen their commending descriptions in France or Jersey and not in England. I only know of one Pear—the Jargonelle—which can scarcely be overpraised. It is exactly like the Gloire de Dijon among Roses. As there may be and are Roses of better shape and finer colour, yet "all round" none equals "old Glory." So of the Jargonelle Pear. It grows magnificently, it fruits regularly and abundantly, and knows not disease ; it suits all climates and all tastes. There are indeed finer-flavoured Pears and more delicate to the palate, but all round none equals the old Jargonelle. In five and twenty years I have never known it fail, and by gathering its fruit at various times I make it last quite a month for the table, and have also a large number stewed, and none are better for that purpose. Next in order happens to come Williams' Bon Chrétien, a shy, very shy, bearer with me, and somewhat inclined to canker. This and the further-named are all pyramids, Jargonelle only on a high, very high, wall. Seckle cankers badly, and I break off branch after branch. I think it a Pear not worth growing ; with me the fruit is small and poor. Soldat Esperen, or Soldat Labreur I think well of ; its growths Poplar-like and pleasing : it does not canker, it fruits regularly, and with artificial heat ripens well. Beurré Hardy is also perfectly healthy. Beurré Diel cankers slightly, not so Beurré d'Amanlis. Winter Nelis utterly fails with me as a pyramid, while Bergamotte Esperen answers perfectly—a healthy variety ; it crops regularly, and the fruit if put in a box near a stove ripens well, and is of delicious flavour. With Summer Doyenné also I am perfectly satisfied, and agree with Mr. Rivers that it is "the very best very early Pear." Beurré Giffard, though placed among the dozen best Pears in catalogues, and growing well and fruiting well, is to me so very disagreeable in flavour that I have expelled it. Madame Treyve, most healthy, needing root-pruning vigorously, but on the whole a satisfactory Pear. Napoleon, healthy, but not yet fruiting like Beurré Hardy. Louise Bonne of Jersey with all its excellencies I find rather apt to canker, while Josephine de

Malines is perfectly healthy. Among Apples I omitted Hambleton Deux Ans, which with me as an espalier cankers badly.

My plan is, so far as my limited room allows, to increase the number of those Apples which prove with me the very best, such as Lord Suffield, Ecklinville Seedling, and Dumelow's Seedling. No words can overpraise them or Irish Peach. Some others answer fairly, while a few I get rid of if wholly unsatisfactory. This allows me room to try some that I hear or see of reputed excellence ; but I must own as to Pears I am not by any means satisfied, and should be glad to hear of some thoroughly satisfactory as pyramids, praised but not overpraised. With many I find there is vigour and freedom from disease, but in spite of root-pruning no satisfactory crop, while with others disease. I should be glad to have more as "all round good," as Jargonelle, Summer Doyenné, and Bergamotte d'Esperen, and I think my experience is that of many more. Has it come to this, that in our changed climate Pears to prosper must have walls? Bush fruit is satisfactory if there be knowledge and care. Raspberries and Strawberries are also satisfactory, but neither Plums, save the very hardiest, and Pears only a very few do well in the open. Of course I put out of reckoning such very bad summers as that of 1879. There is hope for us next year, as the abundance of sun this summer appears to have ripened the wood well.

As to Apple culture, I should like to see it greatly increased, for it is, if judgment be exercised, a sure crop. Why, then, should we owe so many thousand sacks to America when we might grow all we want at home? One thing people seem to shrink from—viz., grubbing up old useless Apple trees. There are two other Apples I think very highly of—namely, Duchess of Oldenburgh and Annie Elizabeth, neither can I do without the Old Keswick Codlin. One hint let me give to those circumstanced as I am with only a small garden. I never grow any Apple that will not cook. There are plenty which are good at dessert which will also if necessary boil or bake well. A few years ago I disposed of all the "leather coats." I exterminated Braddick's Nonpareil, Pitmaston Nonpareil, and another, being determined that all my Apples should do double duty. This plan I recommend to others unless they have large gardens or are content with fewer varieties than I am, though I rather expect as my fruit experiments continue I shall have to come down to fewer varieties than I anticipated.

I should be unfeignedly glad if any amateur would state what Pears he has found do well, thoroughly well, as pyramids, being satisfactory in growth and fruit in average years.—WILTSHIRE RECTOR.

OXFORD BOTANIC GARDEN.—No. 2.

LAST week I very briefly reviewed the history of this Garden from its establishment until the present time, but there are some portions of that history which deserve fuller notice, especially as regards the most eminent of the gentlemen who held the professorship of botany. For this reason a few additional particulars concerning their lives and works may suitably precede my notes on the plants contained in the garden.

Returning to near our starting point, I have already stated that Dr. Robert Morrison was the first professor appointed, and perhaps there was at that time scarcely another man equally well fitted for the post. He had long been an ardent student of botany, had most creditably superintended the Duke of Orleans' noted garden at Blois, and was subsequently appointed superintendent of the Royal Gardens in England by Charles II. When in 1669 he applied for the professorship at Oxford, for which provision had been made by the Earl of Danby, he had acquired considerable fame by his writings and learning. It is said, probably with some degree of truth, that his "Hortus Blesensis" contributed greatly to the success which attended this application, as it was for that period a really advanced scientific work. Not only was classification attempted on a reasonable basis, but the spontaneous generation theory that was then accepted by many who held high positions in the scientific world was directly and lucidly opposed. Having obtained the appointment, however, he commenced a series of lectures which were exceedingly well attended, but the "Historia Plantarum Oxoniensis" that he subsequently engaged in preparing occupied so much of his time that they were partially discontinued. This great work Morrison did not complete, but after his death in 1683 the younger Bobart finished a portion of it. Passing over a period of about forty-five years, which requires no further mention than was accorded last week, we come to the appointment of Dillenius as professor. This celebrated botanist was a native of Darmstadt in Germany, and first owed his reputation to a work he published on the plants around Giessen, at which university he was educated. Dr. William Sherard when

travelling on the continent made his acquaintance; perceiving that he possessed more than ordinary talent, and an equal interest in cryptogamic plants served to cement their friendship. He persuaded Dillenius to accompany him on his return to England, where he subsequently ensured his appointment as professor by a condition in his bequest to the Oxford Garden. As already stated Dillenius applied himself specially to the study of cryptogams, and his "*Historia Muscorum*" is considered as his most important work. It was illustrated by drawings and etchings executed by himself that imparted to the work a character of great excellence—sufficient, indeed, to justify the observation of Dr. C. Daubeny more than a hundred years later, that "in spite of subsequent improvements, the labour, accuracy, and discrimination displayed throughout the work will prevent it from ever becoming obscure."

There is one other professor of whom a few additional notes may be interesting—namely, Dr. John Sibthorp, who succeeded his father in 1784. He devoted himself most ardently to the advancement of botany and the improvement of the Garden by extending the collections of plants grown there. He travelled much in Greece and the islands of the Archipelago, making a large collection of specimens, of which he subsequently left the majority to the Oxford herbarium. It was during these journeys that he gained much of the knowledge embodied in the "*Flora Græca*," a justly celebrated work. To insure the publication of this he bequeathed an estate, the income from which was to be first applied to that purpose, and finally to the establishment of a professorship of rural economy. Many years elapsed before the first part of his design was completed, and then the costliness of the work—viz., 240 guineas, placed it beyond the reach of the majority of botanists.—L. C.

LUXURIANT VINES.

THE examples of Vines cited by "R. P. B.," page 442, must be unique in their way. I have had a good deal to do with Vines, but never before heard of canes of any degree of strength or length that were so destitute of eyes or buds at their base as to render it necessary to leave more rod than was desirable in order to secure a "leading bud," or which necessitated the leaving of the laterals in order to obtain shoots the following year. When a Vine produces leaves it is bound to produce eyes also, and no matter how weak these may be, they will break if the cane be cut back to them, just as strongly as the strongest, if there be vigour in the Vine. But in "R. P. B.'s" Vines there are, it appears, no Vines at all, which is very strange. There is a sequel, I am afraid, to your correspondent's strange story that has yet to be told. I should think it would interest the Editors to look at them, or a sample of them, for I venture to think they never saw the like before. Has "R. P. B.'s" Vines by any accident or treatment burst their permanent buds and pushed away from home? They would do this if the laterals were pinched below the first joint, but I cannot think your correspondent would do that, otherwise his story is altogether incomprehensible. I rather, however, congratulate him on being prevented from cutting down "luxuriant Vines," as the title of his article conveys, to "within a foot of the ground." The professed object of restrictive pruners in cutting back short is to increase the vigour of the cane, though no one has ever been able to explain the philosophy of the practice; but when "R. P. B." has already canes so vigorous that they have "buried" their base buds in their bark, what does he want to cut them down to the root for?—A PUZZLED GARDENER.

CHRYSANTHEMUM SHOWS.

THE season of Chrysanthemum exhibiting is of brief duration, and in consequence nearly thirty shows have been announced to be held from the 11th to the 25th of November, or in about a fortnight. More than a dozen of these have already been held, but as several occurred on the same day—on Wednesday, for instance, there were six—it was impossible to obtain notes of all. Those reported below are some of the most important, and the varieties enumerated include all that are generally grown for exhibition. It will be found that the Chrysanthemum is by no means decreasing in popularity, for the entries in the chief classes are numerous in most instances, and the quality as a rule shows no falling-off from previous years, although some stands we have seen were obviously spoiled by the immaturity of what would have been fine blooms a little later.

BRIXTON AND STREATHAM.

Last year the first exhibition of the season was held by the Lambeth Society; this year, however, Brixton was to the fore, and well maintained the credit of the Society in a bright and satisfactory display. Critically examined there was noticeable a certain degree of

roughness in a few of the exhibits that was not so marked on some past occasions, yet there were compensatory qualities in others that nearly restored the balance, and by the aid of Mr. W. Hall's tasteful arrangement and excellent management an effect was produced that gave general satisfaction.

Chrysanthemums were as usual strongly represented, fifteen classes being devoted to specimen plants and cut flowers, nearly fifty collections being staged. Following the order of the schedule the first class was for six specimen plants, large-flowered varieties. Mr. W. Hall, Secretary to the Society and gardener to W. Stevens, Esq., Tulse Hill, was deservedly awarded the chief prize for well-grown vigorous plants of the following varieties:—Mrs. Dixon, Julie Lagravere with large well-formed blooms, Mrs. George Rundle, Lady Hardinge, Mrs. Halliburton, and Mr. Brunlees, all fairly well flowered and particularly fresh in the colours. Mr. E. Cherry, gardener to Mrs. Gabriel, Streatham, followed closely with healthy specimens, including a good example of Dr. Sharpe. Mr. J. Howes, gardener to Mrs. Bennett, Upper Tulse Hill, was awarded the remaining prize for strong plants but rather deficient in flowers and too formally trained. The best six dwarf-trained Pompons were staged by Mr. J. Howes, Middle. Marthe, Sunset and Sœur Malines, being noteworthy for their profusion of flowers, while Mr. G. Cherry took the second place with moderately good specimens. Pyramid Pompons were not in excellent condition; the best were those from Mr. J. Howes, Mr. Hall, and Mr. C. Livermore, gardener to Frederick Webb, Esq., Christchurch Road, who gained the chief prizes. Three noteworthy collections of three standard Pompons were staged, the premier prize being awarded to Mr. J. Howes for Lilac Cedo Nulli, Sunset, and La Vogue, well grown and flowered. Messrs. Livermore and Hall followed closely in the order named. The same exhibitors, with Mr. J. Weston, gardener to D. Martineau, Esq., Clapham Road, and Mr. Cherry, also carried off the prizes in several other classes for specimens that do not require special mention.

The cut flower classes for Chrysanthemums contained several handsome collections, although, as we noted above, some degree of roughness was observable in a few instances. In the open class for twenty-four incurved varieties there was no competition, one collection only being staged by Mr. A. Holmes, gardener to A. B. Hill, Esq., Clapham Park, who was awarded the first prize. The blooms were fresh and clean, and included several unusually fine. The following were well shown:—Mrs. Dixon, White Venus, Aurea Multiflora, Refulgence, Lady Slade, Lady Talfourd, White and Golden Beverleys, and Baron Beust. In the corresponding "district" class there was also only one entry; Mr. J. Holmes, gardener to G. M. Storey, Esq., Nightingale Lane, being accorded the premier award for a similar collection to the last-named, but with rather smaller blooms. Five exhibitors appeared in the class for twelve incurved blooms, Mr. Livermore gaining the coveted position with remarkably neat specimens; George Glenny, Mrs. Dixon, Hero of Stoke Newington, and White Globe were the best. Mr. J. Howes and Mr. W. Clarke, gardener to J. Rains, Esq., Nightingale Lane, were second and third respectively. The prizes for six incurved were well contested, eight collections being contributed. The prizetakers were Mr. John Davy; Mrs. Drew, Streatham; Mr. C. Livermore; Mr. J. Salter, gardener to J. Southgate, Esq., Leigham Court Road; and Mr. A. Holmes, all staging fresh and neat blooms. One class was devoted to Japanese varieties—namely, for twelve, and in this four collections appeared. Mr. J. Holmes was first with handsome blooms, large and good in colour. The best were The Sultan, Nuit d'Hiver, Elaine, Peter the Great, Fair Maid of Guernsey, and Gloire de Toulouse. Mr. W. Horsham, gardener to J. Kempster, Esq., Clapham Rise, and Mr. J. Young followed. In the class for eight large Anemone varieties, twelve blooms, Mr. J. Young was first with an excellent collection, which included King of Anemones, Gluck, Prince of Anemones, Lady Margaret, Louis Bonamy, and Fleur de Marie. Mr. Livermore was second, and Mr. F. Fulbrook, gardener to Mrs. Hyatt, 5, Palace Road, third with smaller but fresh blooms. For twelve Anemone Pompons, three blooms of each, accompanied by foliage, Mr. Livermore was the only exhibitor, and gained the first prize with a collection that has rarely been excelled. The blooms were large, but of admirable symmetry and clear in colour. The varieties were Dick Turpin, Mr. Astie, Marie Stuart, Madame Montels, Perle, and Antonius. The only other class requiring notice was that for twelve incurved varieties from growers who had not taken a prize for Chrysanthemums before. There were two exhibitors. The best collection was staged by Mr. T. Hill, gardener to the Rev. H. Ralph, Clapham Common; but it was disqualified, as it included duplicates. The first prize was consequently obtained by Mr. J. Swain, gardener to Mrs. Wilson, Tulse Hill. A first-class certificate was awarded to Mr. Salter for a white sport from the Japanese James Salter, named Lady Selborne. It exactly resembled the parent in shape, but had not a tinge of colour, the white being quite pure. It was very distinct and attractive.

Among the miscellaneous exhibits which contributed to the display were fine-foliage plants and Ferns; Messrs. H. Wright, Fulbrook, Young, Howes, Clarke, and Davy being the chief exhibitors. Orchids, Primulas, and table decorations were also well shown, among the first-named being a good specimen of *Cypripedium insigne* from Mr. Hall.

Fruit, particularly Pears and Apples, were not only numerous shown but were of remarkable excellence; fine, clean, well-matured

specimens being staged in all the classes. For three dishes of dessert Pears there were ten entries. Mr. W. Collins, gardener to J. Seligman, Esq., Clapham Park, obtained the first prize with admirable fruit of Duchesse d'Angoulême, Passe Colmar, and Marie Louise. Messrs. A. Holmes and Hall were awarded equal seconds, and Mr. H. Wright was third, all with excellent fruit. For three dishes of kitchen Apples there were a similar number of entries, Mr. J. Holmes being first with Blenheim Pippin, Alfriston (very fine), and Emperor Alexander, all of great size and good form. Mr. E. Gates, gardener to S. G. Tulwyche, Esq., and Mr. G. Plumbridge, gardener to Dr. Markham, Nightingale Lane, followed closely with fine fruit. Nine collections of dessert Apples were staged; Mr. J. Foote, gardener to Mrs. Tredwell, Streatham Hill, being awarded the chief prize for excellent examples of Blenheim Pippin, Ribston Pippin, and King of the Pippins. Mr. John Rockill, gardener to Mrs. Falconer, Clapham Park, Messrs. W. Collins and J. Holmes, securing the remaining prizes. Grapes were rather poorly represented.

Vegetables were well exhibited by Messrs. Emmery, Swain, Livermore, Davy, Gates, and Wright, the three first-named in the class for fifteen kinds of vegetables, and the others in the smaller class. All were fresh, clean, and good.

LAMBETH.

That the Chrysanthemum will thrive in some of the smokiest districts of our great cities is well known and has been frequently exemplified, but never, perhaps, has the surprising adaptability of the plant been better shown than by the half dozen exhibitions which the Borough of Lambeth Amateur Society has held since its commencement. Both cut blooms and plants have been produced in creditable condition, although the majority of the exhibiting members reside within a radius of a mile and a quarter of the Elephant and Castle, a district by no means noted for the clearness and salubrity of its atmosphere. The Exhibition opened on Tuesday last well maintained the fame of the Society, although some of the collections suffered severely in the snow and hail storms a few weeks since, and in consequence specimen plants were not quite so numerous as might be desirable. The classes devoted to cut blooms were, however, fairly represented, and the competition in some instances sufficiently close to necessitate careful deliberation on the part of the Judges. The Lecture Hall in the Borough Road was as usual chosen for the Exhibition, the plants being arranged near the walls and forming a bank at one end of the Hall, while the blooms occupied a table in the centre, the general disposition of the exhibits being very satisfactory. In addition to the ordinary prizes for the members residing within the radius named above, honorary members were allowed to compete among themselves in all the classes, similar prizes being awarded to them.

Among the specimen plants the two most noteworthy classes were those for six dwarf and six standard Pompons. In the first named Mr. Ball secured the chief prize, a silver cup, with well-grown healthy plants of the White, Lilac, Bronze, and Golden Cedo Nullis bearing good characteristic flowers. Mr. Clarke was placed second with a collection very near to the first in vigour and careful training, but slightly deficient in the number of blooms, the only point against him. Mr. W. J. Summers, the Honorary Secretary, Falmouth Villa, Sidcup, was awarded the first prize for six standard Pompons bearing an abundance of good blooms, and indicating by their fresh appearance the careful treatment they had received. Calliope, White and Lilac Cedo Nullis were notable, but a specimen of the beautiful Anemone Pompon was superb; not only were the blooms of great size and excellent form, but they were also unusually abundant. Standard large-flowered varieties were admirably shown by Mr. Willsher, who gained the cup for six, including neat examples of Mrs. George Rundle and George Glenney; Messrs. Tracy and Crisp closely following in the order named. Mr. Tracy secured the first prize for a neat group containing several fine plants. Other pyramids and standards were shown by Messrs. Willsher, Fill, and Crisp.

In the cut blooms the Japanese were admirably represented both in numbers and quality. In the honorary members' division of the class for twelve Japanese blooms, not less than eight varieties, Mr. Summers was first with a handsome, bright, and creditable collection. Elaine, The Cossack, Bouquet Fait, Fulgore, Arlequin, James Salter, and Fair Maid of Guernsey being excellent. Mr. Richards took the second place also with brightly coloured specimens, Garnet being especially noteworthy. The district members contributed satisfactory collections, and were placed in the following order:—First, Mr. Crisp, with Elaine, Garnet, and Gloire de Toulouse, very fine; second, Mr. Halstead; and equal thirds, Messrs. Clarke and Ball. With six varieties Messrs. Summers and Clarke were first in each of their respective divisions, Messrs. Halstead, Crisp, and Ball taking the remaining prizes. Incurved varieties were chiefly exhibited by Messrs. Summers, Richards, Ball, Tozer, Halstead, Crisp, and Fill, the collections of the four first-named being similarly placed at the heads of the classes for twelve and six blooms. The majority were fairly good, especially considering that they were shown as grown, and had not been submitted to the manipulation of dressing. For twelve Anemones Mr. Richards was deservedly awarded the first prize, the blooms being uncommonly large and bright; the same exhibitor also staged fine examples of Anemone Pompons, securing the chief prize for twelve trusses. In the corresponding class for six trusses Mr. Ball had a neat premier collection including Antonius, Astrea, Firefly, and Miss Nightingale, very good.

The energetic and enthusiastic Secretary, Mr. Summers, is, as will

be seen from the preceding notes, a more than ordinarily successful grower of the Chrysanthemum, and some of the best exhibited were from his garden. He thus has a double interest in the successful management of the Society's affairs.

STOKE NEWINGTON.

"The best Show we have had," was the frequently expressed opinion on Monday last of some of the oldest Chrysanthemum growers connected with this Society; and certainly the number of fine specimen plants, the profusion of their flowers, with the excellent cut blooms which filled the large hall, seemed amply sufficient to justify the remark, as it was difficult to imagine a more effective display. About 160 handsome plants were staged—so many that the accommodation was scarcely adequate, and in some parts there was an unavoidable approach to crowding. A long table in the centre of the hall contained some hundreds of blooms, chiefly incurved varieties, which were very strongly represented, and at one end was an elevated group of dwarf Chrysanthemums backed up with large Palms and other fine-foliage plants. The whole arrangement was eminently satisfactory, and the Superintendent of that department, Mr. Robert Oubridge, deserves much praise for the taste displayed. It was unfortunate that on the opening day the weather proved most unpropitious, rain falling heavily during the afternoon and evening; yet a large number of visitors were undeterred by that, and in the later part of the evening the building was crowded.

Nine classes were devoted to plants, the chief being that for the best collection of ten specimens tastefully arranged, in which the prizes consisted of a six-guinea silver cup, £2 10s., and £1 10s. There were five entries, the plants entirely occupying one side of the hall. The winner of the cup was Mr. G. Prickett, gardener to Mrs. Bowerbank, Stoke Newington Lane, his group containing standards, pyramids, and dwarfs, well flowered and healthy. A standard specimen of The Cossack was especially noticeable, its brightly coloured blooms being very telling among the other lighter or duller-coloured varieties. The effective Pompon Bob was also well shown, and many others were similarly good. Mr. J. Howes, gardener to Mrs. Bennett, Tulse Hill House, followed with a handsome collection, very near to the first in merit—indeed, some experienced growers considered it superior. Dwarf plants of Sœur Malines, Faust, and Mdlle. Marthé were flowering most profusely. The third position was obtained by Mr. D. Donald, gardener to J. G. Barclay, Esq., Knott's Green, the plants fresh and good but rather formally trained. Mr. J. Balaam, Vine Nursery, Clapton, was awarded chief honours for six large-flowered varieties; all were well grown, but Mrs. Forsyth was particularly fine. Mr. Donald secured the second prize with neat examples of good varieties. In the corresponding class for four Mr. J. Balaam was again to the front, followed by Mr. Donald and Mr. F. Wells, gardener to W. A. Smee, Esq., The Limes, Stoke Newington. The best four standard large-flowered varieties were staged by Mr. S. Gilbey, gardener to B. Booth, Esq., Clapton, neatly yet not too formally trained. Mr. Prickett took the second place, and his Violet Unique and Antonius were bright and healthy. Pompons were profusely flowered, the best specimens being those in the class for six. In that Mr. J. Howes was the most successful, the chief plants in his collection being Sunset, Mdlle. Marthé, and St. Michael in admirable condition. Mr. M. Butcher, gardener to R. A. Glover, Esq., The Priory, Hadley, Barnet, was a praiseworthy second with specimens bearing surprisingly abundant blooms, and Mr. F. Wells secured the third position. The two last named held relatively similar positions in the gardeners' and amateurs' class for four, followed by Mr. A. Andrew, gardener to J. Wright, Esq., Rosslyn, Stamford Hill.

Cut blooms were, as we have already indicated, remarkably fine and numerous, especially the incurved varieties. The first three classes were devoted to nurserymen and gardeners of Hackney, the exhibits being highly creditable to the district. The best twenty-four varieties were staged by Mr. W. Martin, gardener to J. Appleford, Esq., The Cedars, Stoke Newington, thus winning the silver cup. The blooms were large, symmetrical, even, and compact, the undermentioned being unusually fine—viz., John Salter, Princess of Wales, White Venus, Barbara, Rev. J. Dix, Refulgence, Mrs. Heale, Nil Desperandum, and Princess Beatrice. Mr. Gilbey was placed second, but the blooms were handsome, one specimen of Eve being greatly admired. There were five exhibitors of twelves, Mr. Martin again taking first, showing Lady Hardinge, Refulgence, and Prince Alfred well among others. The second and third collections from Mr. C. Young, gardener to J. Thompson, Esq., and Mr. G. Chalkley, gardener to J. R. Droop, Esq., both of Stamford Hill, were close in quality but fairly placed. In the open class for twenty-four distinct varieties, Mr. W. R. Strong, gardener to Mrs. David Reid, Henwolde Court, Virginia Water, was the most successful, and he was clearly entitled to the distinction accorded him, for the blooms were remarkably fresh, of excellent form, and well selected. Baron Beust, Lady Talfourd, Prince Alfred, Cherub, Empress of India, and Lady Harding were the best among many that were good; Mr. W. Monk, gardener to W. Fowler, Esq., Forest House, Leytonstone, being second with much smaller but neat examples. For twelves in the same section, Mr. J. Hawke, gardener to J. Patterson, Esq., Melrose, Stamford Hill, was first, followed by Messrs. Monk and Wells, all contributing clean fresh blooms. The district amateurs' classes were well filled, Messrs. Coldwell, Broughton, and Wright taking the chief prizes. Mr. W. Butcher easily secured the principal award for twelve Anemone Pompons with a beautiful collection, including Marie

Stuart, Mr. Astie, Regulus, Perle, Mr. Wyness, and Antonius in admirable form. Three stands of Japanese varieties were exhibited in the class for twelve blooms, and Mr. R. Strong was accorded first honours for specimens of great size, and some very brilliant in colour. Yellow and Red Dragons were fine, especially the former, Fulton and Cry Kang, bright; and Elaine, very large. Mr. W. Monk followed with smaller but even blooms, Mr. Donald securing the third position. A first-class certificate was awarded to Mr. Peachey, Stamford Hill, for an incurved Chrysanthemum named *Angelina*, said to be a sport from Lady Slade, which it resembled in form, but the colour was more in the way of Barbara, though lighter.

A few fine-foliage plants with some miscellaneous exhibits were also contributed, but they do not demand special mention, though the handsome collection of Chrysanthemum blooms from Mr. Cochrane, Finsbury Park, deserve noting. Taking the Exhibition generally it was very satisfactory, and Mr. Goldsmith may be complimented upon the success that has attended his efforts.

PUTNEY AND DISTRICT.

The third Exhibition of this Society was held in the Assembly Rooms, Putney, on Tuesday last, and was by far the finest display that has been seen there; indeed the groups of Chrysanthemums have probably never been surpassed at any show. The large room was crowded with plants almost from the floor to the ceiling, and the cut blooms on the central tables with fruit and plants for table decoration, combined to render the effect highly imposing. It is quite clear that this district includes excellent cultivators, and their endeavours to improve themselves in their calling and afford a rich floral treat to the inhabitants of the district will, we trust, meet with the support they deserve from the affluent section of the local community.

The limited time and space at our disposal compel us to refer to the Show in the briefest possible terms. In the chief class a collection of Chrysanthemums in not less than twenty varieties, to occupy not more than 40 superficial feet of space, the first prize, a silver cup, was won by Mr. Harding, gardener to T. D. Galpin, Esq., Bristol House, Putney Heath, with a splendid group, the plants being on single stems, each having from four to eight blooms of the first exhibition size and quality, and the foliage was as good as the blooms. John Salter was remarkably fine, and a reflexed pink variety resembling Wells' Queen commanded attention by its extraordinary flowers. Mr. Ward, gardener to H. Hoskier, Esq., Solna, Putney, was an extremely close second; Golden Empress of India, Barbara, and Faust in this group were not surpassed if equalled by any plants in the Show. Mr. Handley, gardener to Miss Pearson, Victoria Road, was placed third with a most meritorious group, and Messrs. Mahood and Son, Windsor Nursery, Putney, fourth with a collection little inferior. Mr. Stevens, St. John's Nursery, Putney, and Mr. Bennett, gardener to F. Rodwell, Esq., Feldheim, Park Road, Wimbledon, were worthily awarded extra prizes for collections of undeniable merit.

Mr. Bentley, gardener to Sir T. Gabriel, Bart., Edgumbe Hall, Wimbledon, well won the foremost position in the class for six plants in 11½-inch pots with healthy informally trained specimens; Mr. Pithers, gardener to F. C. Williams, Esq., Munster House, Fulham, being second. For three plants the chief prize was won by Mr. Hoskins, gardener to W. V. Williams, Esq.; and for a single specimen honours fell to Messrs. Bentley, Mahood & Sons, and Hoskins in the order named. The last-named exhibitor received the chief prize for six Pompons, followed by Mr. Ansell, gardener to G. Reid, Esq., Coombe Villa, and Mr. Pithers. For three plants Messrs. Bentley, Hoskins, and Pithers were the prizetakers; and for specimen plants Mr. Hoskins and Messrs. Mahood & Son. As a rule the plants were much too closely tied, and more freedom is highly desirable.

Of cut blooms the display was not extensive, but the winning stands contained many excellent flowers. Mr. Berry, gardener to the Countess of Leven and Melville, Roehampton House, was the premier exhibitor, being first for twenty-four blooms, twelve blooms, and six blooms, incurved varieties; second for twelve and first for six Japanese blooms. Mr. Holmes, gardener to G. M. Storey, Esq., Nightingale Lodge, Balham, was second for twelve incurved blooms, the remaining prizes in these classes falling to Messrs. West, Bentley, and Holmes. Messrs. Mahood & Son had the chief prize for Japanese varieties with very large and fine blooms; but Mr. Berry's stand contained brighter flowers.

Several collections of Ferns were staged which call for no comment, the prizes going to Mr. Stevens; Mr. Martin, gardener to J. Brandreth, Esq., Devon Lane, Wimbledon; and Mr. Handley. Primulas were largely represented, the first-prize plants of Mr. Woodhams, gardener to R. Davis, Esq., St. Ann's Hill, Wandsworth, being very dwarf and good; the second (Mr. Ward), also good; and the third (Mr. Mahood's), very fresh. Zonal Pelargoniums from Mr. Bennett and Mr. Bartley—the prizetakers—were well flowered, and plants for table decoration were clean, bright, and good, the successful competitors being Messrs. Bennett, Pithers, and Bentley.

Fruit was good. The first prize for black Grapes was won by Mr. Martin with Black Hamburg in excellent condition; the second by Mr. Ward with admirably finished Lady Downe's; and third by Mr. Bennett with Black Alicante. Mr. Ward staged in the class for white Grapes Muscat of Alexandria of superior quality, and easily secured the foremost place, Mr. Bentley being second with the same variety, and Mr. Martin third with Early Ascot Frontignan of excellent flavour. Culinary Apples were very fine, and dessert Apples good; Pears only of moderate quality. The principal prizetakers in

those classes were Messrs. Haines, Ward, Fanning, and Pragnell, gardener to F. J. Baring, Esq., M.P., The Cedars, Roehampton.

Prizes were given by Mr. Stevens for groups of plants arranged for effect, Mr. Pithers easily securing the first position; by Mr. Mahood for bouquets of Chrysanthemums, and Mr. Moore for hand bouquets, Mr. Pragnell being the winner in both classes. Many of the bouquets were much crowded, and were consequently passed by the Judges. Prizes were also offered for stove and greenhouse plants, and won by Mr. Stevens and Mr. Pithers.

A luncheon was held after the completion of the judging, G. H. Pitt, Esq., a valued supporter of the Society, presiding, supported by Mr. Moore the courteous Secretary.

WALTON AND HERSHAM.

As usual a remarkably beautiful and attractive display greeted the numerous visitors to the Walton Show on Tuesday last, both plants and blooms being excellent; indeed, some of the collections of the latter have rarely been surpassed. Mr. G. Masters, the courteous and enthusiastic Secretary, deserves much credit for the satisfactory arrangements, and we regret that the limited time at our disposal only permitted us to give a comparatively brief report.

Plants.—The collections of six dwarf incurved varieties were very effective and good. A very fine bank at one end of the building was formed of the plants in this class, the specimens being healthy and remarkably well flowered. The first prize, consisting of a watch value four guineas, was awarded to Mr. Lavey, gardener to Mrs. Wilson, Walton, the varieties represented being Alfred Salter, Mrs. Forsyth, Mrs. Dixon, George Glenny, Dr. Sharpe, and Christine, even and handsome. The second position was accorded to Mr. Burns, gardener to H. A. Riggs, Esq., Hershams, who followed very closely with similarly well trained and profusely flowered specimens, some of the varieties being a little past their best, but otherwise indicating very careful culture. Mrs. G. Rundle and Mrs. Dixon were particularly fine. Mr. Reynolds, gardener to Mrs. Allen, Weybridge, was third with a fair collection. The collections of four formed a bank at the opposite end of the room, and, though not quite so compact as those in the first class, the flowers were of good size and very abundant. Mr. Cornhill, gardener to E. Pettit, Esq., Oatlands, secured the chief award with neat examples of Mrs. G. Rundle and Venus among others. The second prize went to Mr. Millican, gardener to Mrs. Cobbett, Walton, with specimens but little inferior to the first. Mr. Polley, gardener to H. Rogers, Esq., Oatlands, took the third prize with bright specimens.

Standards were fairly well shown, but not in great numbers. For four large-flowering varieties Mr. Millican was accorded the chief honours with admirably grown and well trained specimens, Mrs. G. Rundle and Mrs. Dixon being especially noteworthy; Mr. Polley was a good second, but the specimens were rather loosely trained. Mr. Cornhill obtained the third place with moderately good plants. Mr. Burns had the best pair of standards, and Mr. Lavey followed closely, both staging fine examples of Mrs. G. Rundle and Mrs. Dixon. Mr. Lavey staged the best single Pompon, and large-flowered specimens, healthy, vigorous, and bright.

Pompons were very numerous and extremely good. For six dwarf plants Mr. Reynolds was first with even and handsome specimens, Calliope, Antonius, Louisa, and Mdle. Marthe being the most noteworthy. Mr. Cornhill was a close second, Bob, Mr. Astie, and Antonius bearing a profusion of blooms. Mr. Millican was a fair third, his Dick Turpin was particularly bright; Messrs. Lavey and Polley sharing equally well in the class for pairs. Mr. Polley had four handsome standards and easily secured the premier prize, the varieties Antonius, Marie Stuart, Madame Montels, and Marguerite de Coix being finely represented; Messrs. Cornhill and Millican followed, but far behind. Messrs. Lavey and Reynolds were the prizetakers for pairs.

Cut Blooms.—There were five entries in the open class for twenty-four incurved blooms. Mr. Strong, gardener to Mrs. D. Reid, Virginia Water, staged the premier collection of twenty-four in the open class, the blooms being large and of excellent form; especially noteworthy were Guernsey Nugget, Venus, Lady Harding, Baron Beust, Princess of Wales, Barbara, Nil Desperandum, and Empress of India. This very handsome collection well merited its position. The second prize was awarded to Mr. Burns for a fine collection, including an extraordinary Empress of India, with Lady Talfourd, Faust, and Venus among many others extremely fine. Mr. Hill, gardener to A. Savory, Esq., Chertsey, was placed third with smaller but even blooms. Mr. J. Strong, gardener to H. Sweet, Esq., Weybridge, was first with twelve, Lady Harding and Nil Desperandum being the most remarkable. Messrs. Millican and Lavey secured the remaining prizes in that class with creditable specimens. In the Society's district class for twenty-four incurved varieties Mr. Reynolds was an excellent first with blooms of good substance, Messrs. Burns and Cornhill taking the second and third prizes in that order. With twelve Messrs. Burns, Polley, and Reynolds were the successful exhibitors, all staging very good specimens. Mr. Cornhill was placed first with a beautiful collection of twelve reflexed varieties, including fine specimens of Progne, Chevalier Domage, Dr. Sharp, Ariadne, and Wells' Queen. Messrs. Reynolds and Polley took the remaining prizes.

Japanese varieties were well shown, the blooms being unusually large and bright. Mr. J. Strong had the premier collection of twelve, comprising handsome blooms of Gloire de Toulouse, Triomphe du

Nord, Bouquet Fait, Sultan, and Mr. Delaux; Mr. Millican was a very close second, and Mr. Polley third. A handsome collection of twenty-four was exhibited by Mr. Burns, who deservedly secured the chief award. The blooms were large and particularly bright in colour. Garnet, La Nympe, The Daimio, Yellow Dragon, and Nuit d'Hiver were extraordinary. Mr. Reynolds was second also with fine specimens, Mr. Cornhill taking the third prize with smaller but neat blooms. Mr. Reynolds was awarded first for a handsome collection comprising Lady Margaret, King of Anemones, George Sands, Gluck, and Sunflower, all fine. Messrs. Cornhill and Millican followed in the order named with smaller but fresh even blooms. In Anemone Pompons Messrs. Cornhill, Polley, and Millican contributed beautiful blooms; Messrs. Lavey and Reynolds being similarly strong in the ordinary Pompons. The competition for the table decorations and bouquets was close, and considerable taste was displayed by the exhibitors; Messrs. Reynolds, Strong, Lavey, and Cornhill securing the chief prizes.

PLYMOUTH.

A handsome collection of Chrysanthemums, plants, fruit, and flowers under the auspices of the Western Chrysanthemum Society, were displayed in the New Guildhall, Plymouth, on the 10th and 11th inst., the first that the Society has yet held. Mr. James Garraway, Bristol, competed in several classes for cut blooms, and in each case was awarded first prize. His incurved varieties, Prince Alfred, Lord Derby, Mrs. Dixon, and Aurea Multiflora, were especially fine; and Fair Maid of Guernsey, Gloire de Toulouse, and Nuit d'Hiver amongst the Japanese. Mr. G. H. E. Rundle, the pioneer of Chrysanthemum growing in the west, indeed we may almost say in England, also came well to the front, exhibiting largely both in the plant and cut bloom classes, and won several prizes. For the best group of Chrysanthemums, Mr. Brighton, gardener to the Earl of Mount Edgcumbe, was deservedly awarded the first prize with a collection that was well finished both with regard to foliage and flowers. Mr. G. H. E. Rundle was placed second, and the Rev. T. A. Bewes third. There were five competitors in this class. Mr. W. Radmore, Admiral Lowe, Messrs. T. Mills, Moist, Hamilton, Whiteford, W. Symons, H. D. Guy, and S. Elliott were all successful exhibitors in the cut bloom classes.

Ferns, Primulas, berried plants, Zonal Geraniums, ornamental shrubs were largely represented, and added greatly to the effect that can be made in such a spacious building as this Society is fortunate in obtaining. Fruit and Potatoes were also exhibited well and numerous. The attendance was more than before another instance of the rising popularity of this fine autumnal flower.

The arrangements of the Exhibition were most ably conducted by Mr. Cooper, the Honorary Secretary, and Messrs. Walling, Pepperell, and Merry of the Executive.

COCOA-NUT FIBRE REFUSE.

PERMIT me to thank your correspondent, "A NURSERYMAN" (pages 365, 366), for his able remarks on the value and uses of cocoa-nut fibre. I can fully endorse all he has said on its good qualities. I wish, however, that he had said a little more on its merits for propagating purposes. My remarks are not intended for old practitioners, as doubtless they have ascertained the value of the material, but I am now writing for amateurs. Cocoa-nut fibre refuse for propagating is unrivalled. I know of no substance to equal it for that purpose, and as "A NURSERYMAN" stated in his remarks that it was cheap, I should strongly recommend amateurs to give it a trial. Silver sand is employed extensively for propagating purposes, and it will be admitted by all that many plants, such as New Holland plants, Ericas, Epacris, &c., cannot be propagated successfully without it; but we will exclude that section of plants, and leave the nurserymen to propagate them for us. Silver sand is also rather expensive in some parts, and I have seen it used with as great care and economy as if it had been so much gold dust. The fibre is admirably adapted for the propagation of bedding plants in spring, and anyone possessing a small propagating house or pit with bottom heat could not do better than give it a trial. Insert the cuttings into the fibre, and they will be rooted and ready to be potted in a few days.

I have an old bed of fibre that is used for plunging sickly store plants in to recruit their health, starting Achimenes in the spring, &c., and it is surprising how soon cuttings take root by merely inserting them in the fibre. I have seen cuttings of plants that were considered difficult to propagate in an ordinary way, strike freely without any further trouble than making and inserting them in the bed. Such plants as Stephanotis, Hoyas, Dracenas, Allamandas, and Clerodendrons readily strike in this way. It was by this means that one of the most clever propagators around London discovered the method of propagating Aralia Veitchii and A. Veitchii gracillima. It was thought that these fine decorative plants would not strike roots from cuttings, hence the mode of grafting them on A. Guilfoylei was resorted to; but now they are propagated from cuttings by inserting them in fibre in bottom heat. Nothing could possibly be better than a

bed of cocoa-nut fibre for striking flowering and fine-foliage Begonias. For the latter take suitable leaves; cut through the most prominent ribs, and peg them down on to the fibre. In a short time there will be a batch of young plants formed from each leaf, which when sufficiently large can be potted, with a good admixture of the fibre in the soil. It is also invaluable for propagating winter-flowering plants in spring, such as Goldfussias, Eranthemums, Scutellarias, Linums, and a host of others too numerous to mention here. Its uses are manifold, and it only requires to be tested to prove its capabilities.—W. K.

RASPBERRIES.

A NOTE of my thirty years' experience in the cultivation of this fruit, which I believe pays more for the ground which it occupies than any other fruiting plant, may possibly be useful to some readers. About thirty years ago I was convinced that the general plan of tying the canes in a bunch was a mistake, so I experimentalised and put up some posts and wires, to which I tied the canes, but I found that the action of the wind cut them and they broke off in contact with the wire. I then had some hazel rods and also ribs of wood, to which I tied the young canes and had good crops. But to what I now desire to draw the attention of your readers is, Do not allow anyone to cut anything off the shoots of your Raspberry canes—not an inch. When the Raspberries throw up the young shoots have all of them pulled up except four or five at each stool. Allow those to grow, and you may have them as mine are 8 feet to 10 feet long and five-eighths of an inch thick; then train by tying them to the fence in the form of a bow, the highest part of the arched cane being a little above the top of the fence, the end of the cane pointing to the ground. The canes then will produce shoots and fruit from every eye, and keep bearing fruit until the frost cuts them down.

The Raspberry grows best in a moist, rich, deep soil, where its roots are not exposed to the action of the sun, and is greatly benefited by copious supplies of liquid manure during the fruiting season. My rows are 4 feet apart, and the shoots touching each other.—G. O. S.

NEW AND CHOICE PLANTS.—No. 3.

CONTINUING my notes from page 46 upon plants that are remarkable for their novelty, beauty, scarcity, or peculiarity of structure, I wish to draw attention to the following, all of which possess more than ordinary merit, entitling them to the consideration of plant-growers, particularly for large collections, though at least one of them may rank among the plants of general decorative value—namely, the Fairy Rose.

CROTON STEWARTI (Williams).—Crotons, like Dracenas and Coleuses, are now represented by so many forms that the number of really distinct and handsome novelties brought out every year are comparatively few, and they must possess some valuable and clearly marked characters to ensure even a moderate degree of public favour. Croton Stewarti appears to me to be one of those meritorious few, and is likely to gain a high place in the estimation of all who admire richly coloured foliage plants. The finest and most characteristic specimen I have yet seen was shown by Mr. B. S. Williams at the October meeting of the Royal Horticultural Society, when it was greatly admired for the bright clear orange and yellow-coloured bands and margin in contrast with the deep green central portions of the foliage, and relieved by the deep crimson petioles and midribs. The leaves are broad, inversely egg or lance-shaped, and the plant is dwarf in habit, the latter being an important recommendation. Another point, too, is the early stage in which young plants commence showing colour, as that eminently suits them for decorative purposes. It was obtained by Mr. Williams from New Guinea, but whether it be entitled to rank as a species or merely as a variety I am unable to determine, though the latter is the more probable view.

ROSE LITTLE WHITE PET (Henderson).—This charming little Rose has been several times approvingly noted in the Journal, so that it cannot be strange, in name at least, to the majority of your readers. However, my admiration of the plant will perhaps afford some excuse for this reference to it. One of the chief difficulties that amateurs and others whose means of accommodation is limited have to contend with, is the selection of ornamental, easily grown, and generally useful plants out of the multitudes offered for sale, and among which there must necessarily be many totally unfitted to their requirements. It is for this reason that the specially useful plants cannot well be too frequently brought under the notice of the public. Among them the Fairy Rose sent out by Messrs. Henderson & Son is in my opinion worthy of being placed, for its delicate elegance is most pleasing. The common red Fairy Rose is too well known and appreciated to need descrip-

tion here, and in the one named above we have a companion for it exactly similar in habit, but with abundant and neatly-formed white flowers. For greenhouse or conservatory decoration in April and May it is invaluable, especially when grown in 48-size pots. A first-class certificate was awarded for it at the Royal Botanic Society's Show on the 9th of May in the present year.

ERYTHRINA PARCELLI (Bull).—Coral Trees are usually grown for their brilliantly coloured flowers; but the species under notice, though also bearing showy flowers, is chiefly remarkable for its finely variegated foliage. It is not strictly a novelty, for it was sent out by Mr. Bull in 1874, but it is not at present so well known as it deserves to be. As a stove plant it is surpassed by few in distinctness and effectiveness, and being of vigorous growth it is well suited for arranging in the centre of a group or bed. For some time past a good specimen has been notable in the stove at Kew, very satisfactorily indicating the decorative value of the plant. The variegation consists in the midrib and lateral veins of the rhomb-shaped leaflets being of a bright yellow colour, the remaining portion being a deep green tint. The three leaflets that form each leaf are rather distantly placed, and are bent downwards slightly, imparting somewhat of a pendulous appearance to them. Plenty of heat, a light position, and a good compost of loam, leaf soil, and sand, with abundance of water during growth, are the principal cultural requirements of the plant.

ANTHURIUM WAROCQUEANUM (Veitch).—As regards beauty of foliage this species of Anthurium is equal to any in cultivation, indeed when in good condition I consider that it excels the majority. The leafstalks rise to the height of about 2 feet; they are curved at the apex, the blade of the leaf being frequently a yard in length, and turned point downwards, so that they are vertical, with the deeply heart-shaped base uppermost, and the blade tapering gradually down to the point. The colour is a peculiar but beautiful deep green, the surface possessing a fine velvety gloss; that, together with the lighter-coloured distinctly-marked veins, constitutes the chief attractions of the plant. Like others of the genus its home is in tropical South America, Messrs. Veitch having obtained it from New Granada a few years since. Both the Royal Horticultural Society and the Royal Botanic Society have signified their appreciation of its merits by the award of first-class certificates. Though not very difficult to grow there are a few little points in its culture that need special attention, and therefore the following hints may be of service to those who have just obtained or are about to purchase a plant and are in doubt as to the best mode of treatment, especially in potting. In the first place, it must be remembered that all Anthuriums are superficial rooters, so that a great depth of soil is not only unnecessary but positively injurious. Wide and deep pans are the best for these rather delicate species, and quite one-third of their depth should be occupied by the drainage, consisting of carefully arranged potsherds, as it is very important that there be no stagnation. A little moss may be placed over this, and then some of the compost—good fibrous peat, charcoal, sand, and sphagnum well mixed; carefully place the plant in the pan, filling up with the compost several inches above the rim of the pan and surfacing with fresh moss. A few light sticks may be needed to render the leaves and stem firm. A moist stove or a house devoted to tropical aquatic plants suits it admirably, abundance of water being required at the roots during growth, but syringing the foliage must be avoided if possible. A shady position is also needed, as the leaves are quickly injured by exposure to the sun.—R. L.

ROOT PRUNING.

UNDER the above heading I desire to offer a few remarks. Those having fruit trees making vigorous growth and perfecting few or no fruit buds, will possibly have selected them to undergo a course of root-pruning, with a view to improving them. I am of opinion that this is often carried to the extreme, and instead of trees of moderate growth and full of fruit buds, we possess plants full of fruiting spurs and of insufficient vigour to carry a crop to perfection, through the undue use of the knife among the roots.

To obviate this, a trench should be taken out as near as possible at the extremity of the roots (a glance at the branches will probably be the best guide to determine this). Fork-out the soil, and carefully preserve all roots from 3 to 7 feet from the stem of the tree. Let them be placed so that they will not be injured, sprinkled with water, and covered with a mat until they can again be laid in the soil. If the drainage is defective, let it be attended to, as this is the main point in the cultivation of tree or plant. The soil it is desirable to use for this purpose is not always procurable, so that which is at hand must be made to suit the

tree as nearly as possible. If it can be obtained, a good sound fibrous loam, brick and lime rubbish, and a few crushed bones will be found a suitable compost for most fruit trees. Cherries delight in a stronger soil, but they will succeed in the above. If the soil is light a small quantity of brick and lime rubbish will be sufficient. The soil should be made quite firm and rammed well up to the old ball. The roots should be laid level and in the position they occupied before as nearly as possible. Cut only the tips off the roots; and if any portion of the root has been injured in lifting pare it off with a sharp knife, it will most likely emit roots from this point.

By the above method I maintain that a fruit tree, however vigorous, receives a sufficient check to induce fruitfulness, and leaves enough strength in the root to allow the branches to make a moderate growth the following season, and so do away with the practice of cutting off half the roots to throw the tree into a state of fruitfulness and cause permanent injury.

In another issue I will write on training fruit trees.—ROBERT D. LONG.

AMORPHOPHALLUS RIVIERI.

I HAVE had sent to me from Belgium some enormous tubers, as large as good-sized Turnips, but not at all like them, under the above name. I am told they only produce a leaf, no stem, as plants generally do, and that the plants are both curious and



Fig. 83.—*Amorphophallus Rivieri*.

ornamental. Can you give me any information about this plant? What shall I do with the tubers, and where and how should I grow the plants? I shall be pleased to have instructions on the subject from any of your readers.—A STATION MASTER.

[As you live in the south of England you will be able to grow this singular plant, of which we are able to give an engraving, in your garden during the summer; but in the autumn it should be taken under cover, and when the large and peculiar leaves have died store the tubers in sand, or if in pots place them in a dry position. Ordinary light garden soil suits it very well. The stem-like leafstalk is a very dark green in colour, curiously spotted and mottled with lighter tints. It flowers like the Arums, but the spathe is best removed as soon as noticed, for the odour is excessively fetid.]

NOTES ON BIRDS.

SHAKESPEARE was right, as he always is about birds and flowers, when he wrote, "The Blackbird had an orange tawny bill;" still the modern poet was equally right in writing of its having a black one. The one wrote of the old male bird, the other of the female or a young cock of the year. But whilst writing on the subject I may mention that the bill colour of the male varies very much, and in some localities it is such a deep orange it is almost red, while in others it is of a deep golden yellow; also there is much difference in the black colour of the bird

those having the rich red orange bill being of a much more purple black, to the light-billed birds' blue black. Again, the tawny orange-billed birds are mostly neater and smaller than the others. This is not a matter of age, but of bird variation, of which I have taken notice for many years—not only of those in wild state, but also those sent for exhibition to the various shows at which I have had the honour of acting as judge.

Mr. Hiam's notes on the departure of the swallow are interesting, and it would be well if more of the readers of the Journal would from time to time give notes on natural history. I for one would not only read them with pleasure, but be thankful. Mr. Hiam says the swallows finally left his locality (Ashwood Bank, Worcestershire) on the 15th of October. The "SURREY PHYSICIAN" gave the 21st of October for his locality, whilst in mine (Brenchley, Kent) I saw two swallows flying about my grounds on the 7th of November; and walking to Paddock Wood station, about a mile and a half from my house, on the 8th of November I saw three more flying close by the station, and evidently only feeding—not on passage, as they were skimming about the chimneys of the houses. This is later than I ever knew them before, the 1st of November being the latest on my record. I was the more surprised at their not having left, as we have had 8° of frost here registered; still they stayed. I have not seen any since the 8th.

As Mr. Hiam says truly, the bullfinches are numerous this year, and are at work on the Larch buds. How are they best trapped? Will anyone kindly tell me? for I shudder when I think of my Plum tree bloom buds, and hear and see so many bullfinches about. Redwings and fieldfares appeared here at the end of September, and cleared off the Damsons with much zest, and then went on rejoicing. What beautiful birds they are!

As regards Holly berries, a few of my trees have some, others not any, while one is nearly all berries, with scarcely a leaf—a gorgeous sight. I never saw its equal. Heps are most plentiful, and many other berries. The Yews (Irish) are very beautiful and bright with their fruit. The thrushes and robins coming day by day, however, have lessened the crop considerably; also a great tit has been feasting. I never knew they were fond of such diet before, so one lives and learns. Before closing this I may mention that I have noticed it stated that wasps have been very abundant this year in most localities. Here we have had very few, scarcely any trouble at all. Is it possible that the great, blue, cob, and other tits, of which there are many here, have kept them under by eating them? for they have my bees, as they have eaten them all.—HARRISON WEIR, *Weirleigh, Brenchley, Kent.*



AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY held on Tuesday last, Colonel R. Trevor Clarke in the chair, the following candidates were elected Fellows of the Society—viz., Thomas Clifford, George Henry Ellis, R. P. Humphery, Thomas Joseph Saltmarsh, Archibald Seth-Smith, A. W. Travers, James Wallace, and James P. Watts.

— It is somewhat the fashion in these days of agricultural depression to urge upon farmers the IMPORTANCE OF GROWING VEGETABLES FOR MARKET; but we are credibly informed that the season of 1880 is proving far from a prosperous one for market gardeners. It seems that there have been too many vegetables grown to be profitable, and it is questionable if those even who are near to London, and can therefore cart their produce to the markets and load back with cheaply bought manure, have more than covered their expenses. Those at a greater distance who have to send by rail have been especially unfortunate, as frequently the "returns" were nil, or not even sufficient to pay the cost of carriage. Peas were late, and although some crops realised good prices the greater part were ready for picking simultaneously, the consequence being a glut in the markets. The case was still worse with the Runner Beans, a more expensive crop to grow, not being off in time to be followed by a crop of Turnips or other quick-growing vegetables. Good prices were obtained for a few of the

earliest pickings; but later on they were extremely plentiful, and owing to the low prices large quantities were never picked. They were cut down by frosts much earlier than usual. Potatoes, in spite of the heavy crops, especially of the later varieties, have not been very profitable, as prices are low. Many growers would be glad to obtain £5 per ton even for Victoria Regents. Savoys are another crop on which much money will be lost this season, as it does not pay to grow them for digging or turning-in for manurial purposes, yet this is what is being done by those at a distance from London.

— It is common around London to see in gardens of all sizes a good display of CHRYSANTHEMUMS AGAINST WALLS, and it is surprising how well the plants succeed in such positions, the growth being particularly vigorous, and the slight protection afforded by the wall renders the flowers cleaner and more lasting. Our Clonmel correspondent, "W. J. M.," appears to have adopted a similar practice in Ireland, and with considerable success, judging by the handsome flower of the white Fleur de Marie he has sent us, grown against a south-west wall. When a careful selection of varieties is made, choosing those with bright or distinct shades of colour, the effect produced is very satisfactory.

— WE regret to have to announce the death of REV. T. C. BRÉHAUT, chaplain of the Guernsey prison, which occurred on the 4th inst. at his residence, Richmond House, Guernsey. For many years Mr. Bréhaut was a regular contributor to the pages of this Journal on the subject of fruits, and especially on the orchard house and cordon cultivation of fruit trees. He did much to extend and popularise these modes of management, and his views on the subject were fully set out in these pages. Mr. Bréhaut was the author of "The Modern Peach Pruner," published at this office, and also of "Cordon Training of Fruit Trees."

— WE have already many useful variegated plants for decorative purposes; but the CYPERUS LAXUS VARIEGATUS, shown by the General Horticultural Company at the meeting of the Royal Horticultural Society on October the 12th, is entitled to rank among the best. The Committee indicated their appreciation of its merits by awarding a first-class certificate for it, an honour which was well deserved. The plant is dwarf in habit, scarcely exceeding 15 inches in height, and the white streaks in the foliage are very clear and distinctly marked.

— OUR correspondent "C. P. P.," writing to us on the CLIMATE OF VENTNOR, states that "Many fine zonal Pelargoniums are still in bloom, and even fancy Pelargoniums, the dwarf bedding kinds not being injured by frost. The Veronica Andersoni is in very good bloom in the gardens here, where it seems to flourish like the Euonymus. There is also a small plant of Eucalyptus globulus at the back of this house, which is growing freely; but I do not think it was unprotected last winter, but shall make inquiries. There is an old large plant of scarlet zonal Geranium against the house under a verandah, which has lived out several winters."

— MR. SALTER, gardener to J. Southgate, Esq., Selborne, Leigham Court Road, Streatham, exhibited at the Brixton Chrysanthemum Show on Thursday last a very distinct and pretty JAPANESE CHRYSANTHEMUM named LADY SELBORNE, a sport from the well-known James Salter. It has the peculiar form of flower that marks the latter variety, the florets broad and twisted, but pure white. If Mr. Salter succeeds in fixing the sport it will undoubtedly prove a great acquisition. The Judges unanimously accorded it a first-class certificate.

— "R. S." sends us the following note in reference to a LARGE VINERY that is being erected in Jersey:—"It may interest some of your readers to know that Mr. G. Bashford, the well-known Grape-grower, is now having a vinery erected of unusual

size. The particulars of the dimensions have already appeared in the *Builder*, from which I have extracted them. Length 1,100 feet, width 30 feet, superficial area of glass 42,000 feet. Length of 4-inch piping to be employed 10,000 feet. The glazing is to be done on a patent non-puttying system. The house is intended for Vines to yield an early supply."

— THE Annual General Meeting of NATIONAL AURICULA, CARNATION, AND PICOTEE SOCIETIES (Southern Section), will be held at the house of E. S. Dodwell, Esq., 11, Chatham Terrace, Larkhall Rise, Clapham, S.W., on November 23rd, at 3 P.M. Wandsworth Road is the nearest railway station.

— MESSRS. JAMES CARTER & Co., 237, High Holborn, London, have sent us some remarkably fine MAGNUM BONUM POTATOES, with a request that we test their quality when cooked. We have done so and found them excellent. They were white, sufficiently mealy, melting, and of an agreeable and delicate flavour. The Magnum Bonum appears to be one of the few Potatoes that combines size with good appearance, suitable for the exhibition table, great cropping and disease-resisting properties, and the quality, judged at least by all the samples we have tasted, fit for any table. The cooking properties are probably not developed equally early in all cases, as soils exert a great influence in this respect; and we have proved by careful experiment that the large imposing tubers that would secure a first prize at a Potato exhibition are by no means equal in quality to the smaller or medium-sized samples that might by chance obtain a third prize, but, as is more probable, would be passed by the Judges.

— MR. H. CANNELL, Swanley, Kent, recently sent us some spikes of the beautiful SALVIA PITCHERI. Blue flowers are generally rather scarce, but in the middle of November they are especially welcome. The shade, too, possessed by this fine Salvia is one of the clearest and most pleasing represented in flowers. The spikes are 7 or 8 inches in length, cylindrical, very compact, and contain a large number of medium-size flowers. For growing in pots and employing in conservatory and greenhouse decoration this plant will be invaluable, constituting an important addition to our best of late autumn-flowering plants.

— THOSE charming little Orchids, the INDIAN CROCUSES or PLEIONES, are general favourites, owing to their brightly-coloured and pretty flowers being produced at a season when the Orchid house is comparatively dull. During the past month we have seen several handsome displays of *P. lagenaria* and *P. maculata*, Messrs. Veitch and Williams having good collections remarkably well grown. Another pretty species has also been notable at Kew in company with the others—namely, *P. Wallichiana*, similar in habit and flowers to the better known forms.

— ONE of the most elegant of the delicate Filmy Ferns is HYMENOPHYLLUM CILIATUM, which has diminutive pellucid pale green fronds, slightly fringed with fine hairs, as the name implies. This species is not very difficult to manage, as it succeeds well on a portion of Tree Fern stem in a Wardian case. As with others of the genus, the chief requirements are abundant moisture in the air and around its delicate roots, but no approach to stagnation, and a very equable temperature.

— MR. HARRISON WEIR writes:—"The WEATHER IN KENT is all against gardening—frost, snow, rain, mud, slush, mixed, and plenty of it!"

— THE fact that the Rev. Canon Hole's "BOOK ABOUT ROSES" (Blackwood & Sons) has reached a seventh edition is sufficient evidence of its popularity. Written in a style that is at once racy and readable, and containing instruction that is sound and reliable, it meets the tastes of a wide circle of readers. It only

remains to add that the present volume is larger and more varied than the last, is admirably printed on superior paper, and forms an attractive and useful volume.

— MR. J. MUIR of Margam sends us the two following notes—"In the autumn of 1877 HOLLY BERRIES were most abundant on the trees here; in 1878 they were very scarce. In 1879 they were again plentiful, and this year we have not a single berry. Is this scarcity general throughout the country, and may we attribute it to the same causes as our fruit tree failures? The want of Holly berries is certainly much felt at Christmas time, and if a course could be pointed out which would insure their fruiting annually no doubt many would follow it."

— "THE ARBUTUS UNEDO is one of the freest and finest winter berried trees we have. At the present time its rich-coloured Strawberry-like fruits are hanging in clusters, and contrast well with the little bell-shaped cream-coloured blooms which expand all the year through. In severe winters blackbirds, thrushes, and others destroy many of the berries."

— "RUS" of Reading writes—"Let me recommend BILBERGIA MORELLIANA to your readers. It is a superb plant. Nurserymen do not seem to like it. I had mine from a neighbour."

— THE same correspondent states that OLEANDERS AT PERNAMBUCO are extremely handsome, growing most luxuriantly and flowering profusely, the red and white varieties being highly attractive.

VEGETABLES AT CHISWICK.

A MEETING of the Fruit and Vegetable Committees of the Royal Horticultural Society was held at Chiswick on the 9th inst. (J. Lee, Esq., in the chair), when the following vegetables were examined:—

The collection of Brussels Sprouts growing in the garden was inspected, in all thirty-three lots. A great proportion of these were found to be very much mixed, and also inferior. The following were considered by the Committee the most approved stocks—viz., Aigburth, from Messrs. Kerr; and Otterspool, from Mr. Hinds, which are identical; Dalkeith Improved, from Messrs. Downie and Laird; Cragos Favourite, from Messrs. Cocker & Sons; Scrymgeour's Giant, from Messrs. Nutting; and The Chelsea, from Messrs. Veitch. A new Beet from Messrs. Rutley & Silverlock was examined and highly approved. Some Shallots raised from seed, sent to the garden by Mr. E. Pond of Jersey, were examined. Examples of these when submitted to the Committee at the meeting on October 14th, 1879, were supposed to be Potato Onions, but as now grown in the garden have been found to be true Shallots, the silver-skinned variety being very distinct and pretty. Several new Potatoes grown in the garden were examined, the most promising of which were Carter's New and Lye's Wiltshire Snowflake.

THE WEATHER, AND OUTDOOR GARDENING IN IRELAND.

IRELAND is in more respects than politically a land of contrasts. The late storm and persistent rains were by no means equally diffused. I learn from Mr. Burbidge of the Dublin University Botanic Gardens that it was only by strenuous exertions his staff maintained the fires in the houses where they were indispensable; while the Chief Secretary has inaugurated a subscription for some of the poorer market gardeners and cotters on the banks of the Tolka, Dublin, that overflowed its banks. From Wednesday morning 27th ult. until the following Thursday same hour, 2.736 inches of rain had fallen. For ten years nothing of the kind had been noted, and the greater part of the time a hurricane blew at Kingstown, eighty-five miles an hour being registered. The steady temperature of 46° was during this time maintained there. Turning to the west of Ireland, any of your readers who might contemplate changing to a milder climate warmed by the soft breezes of the Gulf Stream will be charmed with the following extract, by permission, from a letter just received from Mrs. Randal Peyton, Rose Hall House, Sligo, an enthusiastic floral patroness—"The weather here has been so lovely—no storms, no rain: it is a water famine we are suffering from. No mists; nothing but the clearest skies and the most brilliant sunshine.

We have had, however, unfortunately for some half-hardy plants out of doors, too often sharp frosts at night. All the 'American storms' passed over us to break elsewhere. Lough Gill, the beauties of which you so admired, and the rivers here, were never so low within living memory, and the trees are only now in their gorgeous autumn tints. Driving through the country, it is much more like the first week in October; and as we have had no frosts to speak of for the past ten days, though the bright sunshine has continued, I have Roses, Chrysanthemums, Fuchsias, Laurustinus, Anemones, Petunias, Mignonette, &c., all in flower in my garden together, not to mention anything in the greenhouse. We have now nearly completed the planting of our bulbs, including some thousands of Tulips alone, which we were enabled to do uninterruptedly owing to the unprecedented fine weather at this season."

—W. J. M., *Clonmel*.

GLASS STRUCTURES FOR AMATEURS.

OF the many structures employed in gardening, those erected by amateurs present the most diversified aspect. What these are can best be ascertained by an inspection of the numerous examples

to be seen in the vicinity of large towns. Ostensibly constructed for the growth of plants, some are a medley of masonry, wood-work, and glass, the latter quite out of all proportion to the former. The amateur's success with such means is, as might be expected, moderate, yet his attempt to grow plants affords him pleasure and recreative employment. Such structures are often the outcome of a taste engendered by the gift of a few cuttings, which are carefully reared and tended until they outgrow the space afforded by the windows of rooms, and then a greenhouse becomes necessary, and is forthwith erected. Success attends the effort; the windows of the dwelling are full of flowers, the home is made cheerful, passers-by admire it, and thus the taste for flowers spreads, and the means for growing them increase. Many structures are erected hastily, and without due consideration having been given to their suitability for the purpose for which they were intended: failure results and inquiry follows.

That inquiries on the subject in question are prevalent now I have the best proof, for by the same post three letters were sent to me by the Editors. A correspondent living near a large manufacturing town writes:—"I am desirous of constructing a house in which to grow Vines—*i.e.*, Grapes and plants. What descrip-

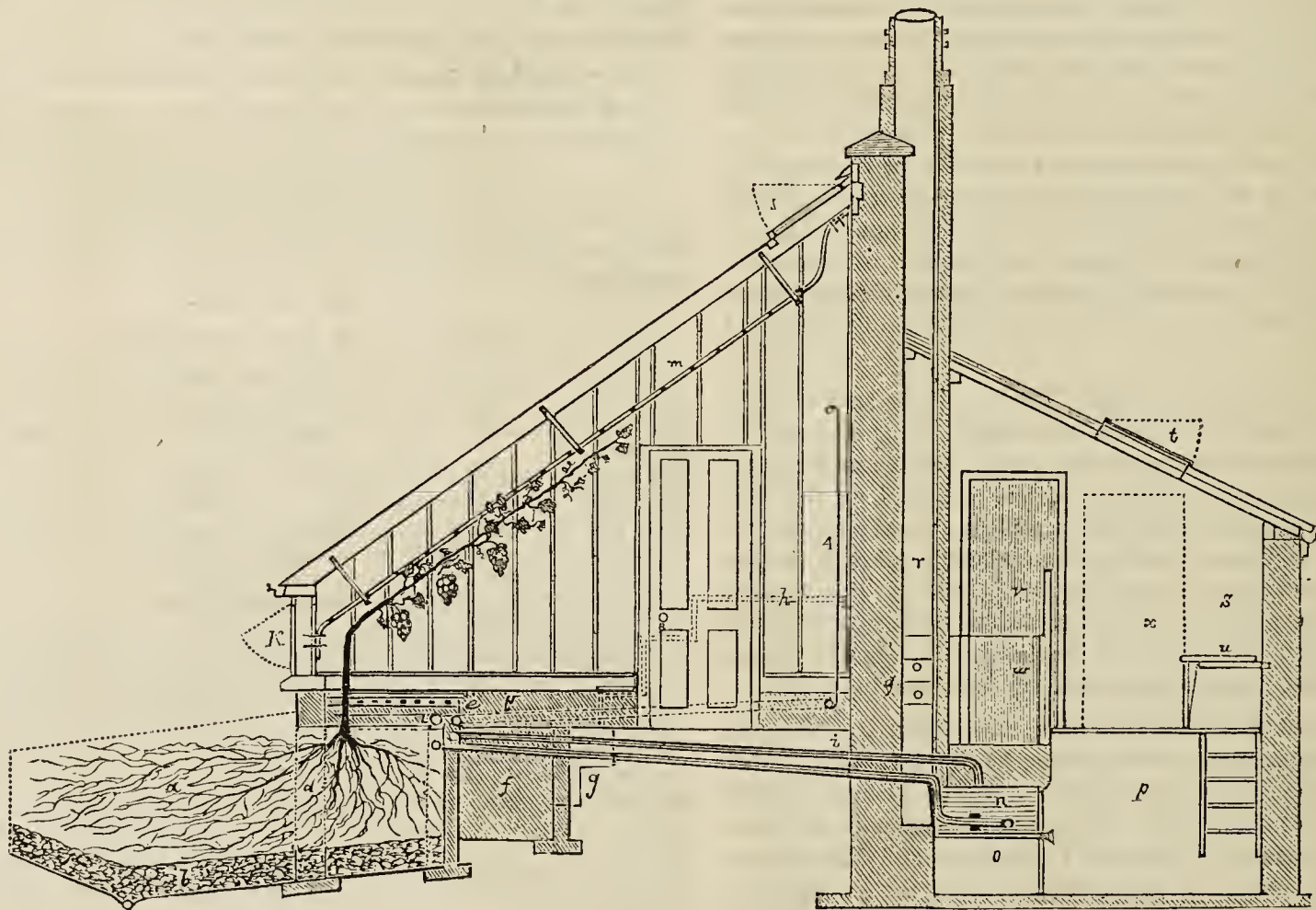


Fig. 84.—LEAN-TO HOUSE—SECTION AND END ELEVATION.

Scale, three-sixteenths of an inch to a foot.

tion of house would be most suitable? Hints as to making border, selection of varieties, and heating the house would be thankfully received by one in fog, smut, and dust." Next a country curate asks—"Could you give me information in respect of the management of a greenhouse (with Vines) in winter, temperature, watering, ventilation, and general treatment through the winter?" The concluding letter is from a "man of small means:"—"What plants are suitable for growing in a vinery to afford a display of flowers, and for cutting in autumn, winter, and spring? I have no other house, only a few frames. In summer I have flowers from outdoor plants, so that summer-flowering plants are not required for the house, besides I find they do not do well under the Vines at that time; but I suppose the space on the stages might be utilised for growing Tomatoes, Cucumbers, and probably Melons. If you could add (say in an article by one of your many able contributors) a few cultural directions, they would be useful to many others in like circumstances to myself." Accompanying these letters was the following true editorial note, brief and to the point:—"Many have but one house for Vines and plants. Will you write an article on the subject? It would be acceptable to many readers. We have other letters upon the same subject." I

will endeavour to comply, founding my remarks on observations and experience, and will try to conform with the wishes of those correspondents in the hope of being useful to them and others.

Glass structures admit of two forms only—*viz.*, lean-to roof and span roof, the lines being straight or curvilinear; but there are modifications, one of the most important being the half-span. The lean-to is the most eligible where there is a wall already available, especially if it be the blank wall of a building with suitable aspect; but if the wall be not that of a building, or higher than 9 feet, the half-span is preferable, and where there is no wall at all the span roof is the most suitable. I will endeavour to elucidate the matter by illustration so that each may select the form most suitable to his exigency, commencing with a lean-to house for Vines and plants.

References to lean-to section (fig. 84), and ground plan (fig. 85). A, Vine border; B, rubble; C, drain; D, pillars to carry arches of front wall to allow Vine roots to pass out; E, front shelf; F, pathway; G, steps; H, back stage; I, hot-water pipes, 4 inches; J, opening to allow Vine roots to pass into outside border; K, front lights to open entire length of house with crank and lever apparatus; L, top lights to open full length of house with crank

and lever; M, stays for trellis wires for Vines, one stay to each rafter, and wires 9 inches apart; N, boiler (saddle); O, ashpit; P, stovehole; Q, feed cistern; R, boiler flue; S, potting shed; T, skylight; U, potting bench; V, Mushroom bed with bin under to force Rhubarb, Seakale, and Chicory—viz., W; X, fruit room, &c.; Y, propagating bed, rubble over pipes, and covered with frame for striking cuttings, &c. Small jets may be added at one or both ends of the house if required. These frame-like pits cost little and are very useful; they may be readily heated by 2-inch pipes connected with the flow and return pipes in the house, with valves attached to turn on and shut off the heat as required.—G. ABBEY.

CLONMEL DISTRICT ROOT AND FRUIT SHOW.

SOME special features at this fine autumn Exhibition deserve notice. Finer roots, especially of Swede and Long Red Mangolds,

the Judges (Messrs. Fennessy, Waterford, and Freeman, Cahir) admitted they had not seen this year, especially in the competition for the prizes given by Messrs. Sutton & Sons of Reading; but your readers will be more interested in hearing of the fruit and vegetable exhibits. Not only in England, judging from the reports in the Journal and other publications, but in Ireland, the crops of Peaches, Pears, Apples, and other wall fruit are very poor this year; yet the exhibits of Grapes, Pears, and Apples astonished most of the visitors. The first-prize collection of fruit was from Mrs. Bianconi, Longfield, Cashel (gardener, Mr. Palmer). Among the most noticeable varieties were fine Trebbiano Grapes; Emperor Alexander, Calville Blanche, and Golden Russet Apples; Duchesse d'Angoulême and Beurré d'Amanlis Pears. The second collection, sent by Mrs. Thomas Malcomson, Minella, Clonmel (gardener, Mr. John Crehan), included some superb examples. Lord Suffield Apple was admittedly the finest ever shown here. Equally fine was Doyenné Boussoch Pear, which received the first

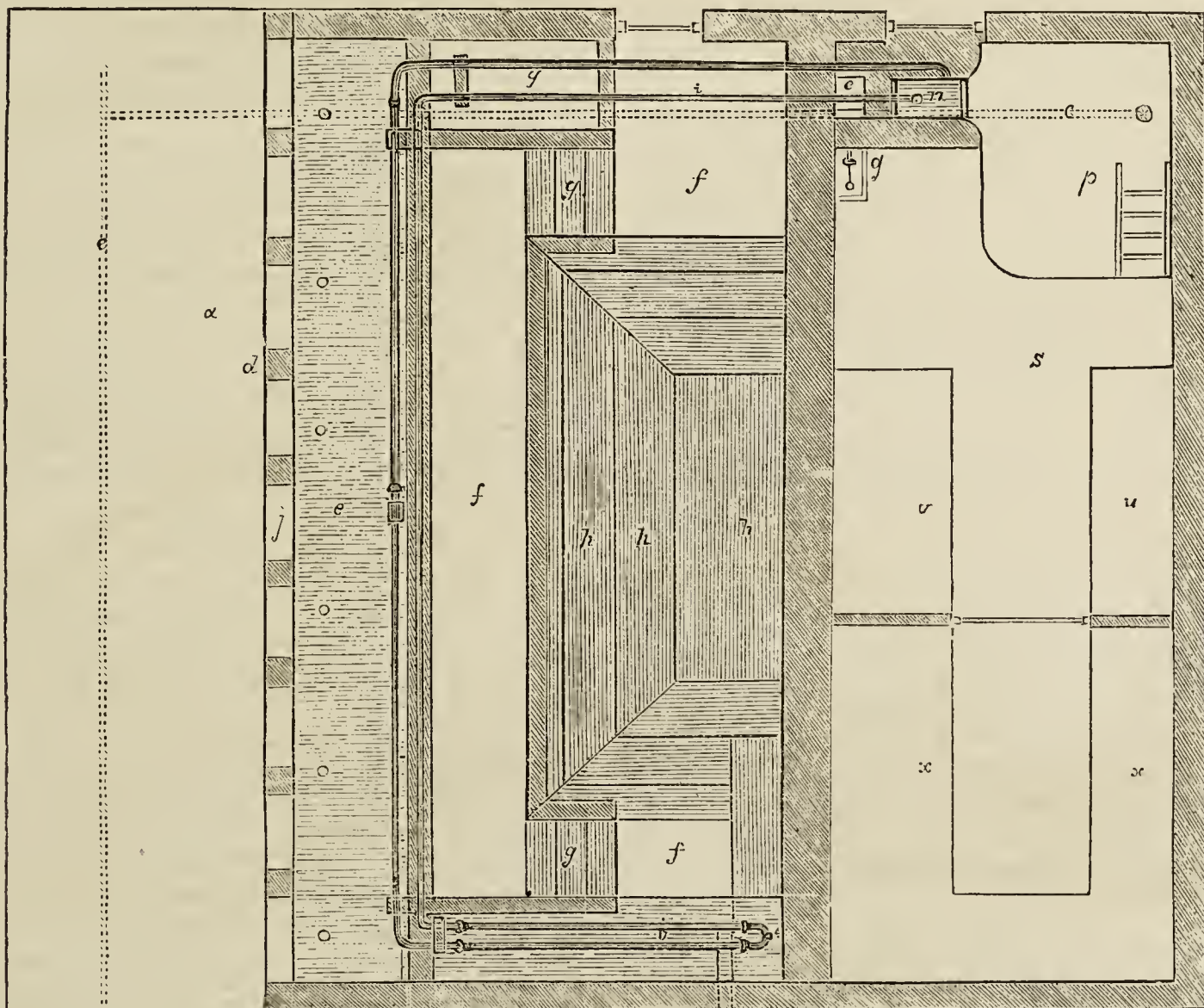


Fig. 85.—LEAN-TO HOUSE—GROUND PLAN.
Scale, three-sixteenths of an inch to a foot.

prize in its section. Those two dishes were noted by the Judges in a large competition as the best in the Show. Almost equally remarkable were the Apples Hawthornden, Blenheim Orange, Alfriston, and Warner's King; in fact, I noticed in gardens around here whenever any Apple succeeded this year it generally was one of those named. Pears in this collection, too, were very fine, especially Duchesse d'Angoulême and Beurré Diel, while Mr. Crehan's Black Hamburg Grapes were very large and well coloured. Some fine Apples and Pears in the dessert and baking sections were also shown by Lord Donoghmore (gardener, Mr. Ryan), which were awarded prizes. A collection of fruit, too, that deservedly received much admiration were sent in three artistic baskets by Mrs. Crean, Glenview, near this town, representing upwards of a dozen excellent varieties of Apples, conspicuous among which were Alfriston (the largest Apple in the Show), Mère

de Ménage, King of the Pippins, Mannington's Pearmain, and the French Crab, which has been found to remain sound for two years. Catillac, Gansel's Bergamot, and Duchesse d'Angoulême were among the finest Pears. Though this collection was marked "not for competition," the Judges warmly recommended a special first prize. The gardener is Mr. Denis Ryan. The vegetable collections, as at all times, were most commendable. Lord Lismore's, though marked "not for competition," were specially commended for a first prize. It contained Williams' Matchless Celery, white and pink; Bedfordshire Champion Onion, Beauty of Hebron Potato, fine Endive, Mushrooms, and at this time of year admirable Asparagus. The first-prize collection was Lord Donoghmore's, with many novel well-grown vegetables, including the largest Cabbage in the Show, Turnip Beet, Salsafy, Capsicum, Egg Plants, and table Maize. Lady Margaret Charteris had some commend-

able exhibits from Cabir, while the Castletown collection from Col. Villiers Stuart was awarded a special first prize. Other features of this Exhibition were Mrs. Bagwell's splendid floral table decoration design, the large collection of Coniferae and ornamental evergreens from the Clonmel nurseries, and the collections of Potatoes and Gourds, numbering eighteen varieties, from Lord Donoghmore's, Knocklofty. Much credit is due to the courteous and energetic Hon. Secretary, Rev. James Millington, Rector of Kilronan, for the success achieved this year in spite of many difficulties.—W. J. M., *Clonmel*.

ROYAL HORTICULTURAL SOCIETY.

NOVEMBER 16TH.

SELDOM has the November meeting of this Society been fuller and more interesting than the one on Tuesday last. Both the Fruit and Floral Committees had ample employment, but the former especially, while the vegetables staged in competition for Messrs. Suttons' and Hooper's prizes produced an extensive display in the vestibule.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Mr. Maw, Severn House, Handbridge, Salop, sent a seedling Apple which did not possess any distinctive quality. Messrs. Saltmarsh & Son, Chelmsford, sent a seedling Apple called "The Queen," a large, round, and somewhat oblate-shaped Apple, highly coloured and striped. It had a resemblance to Cox's Pomona. The flesh was tender and brisk, with good cooking properties, and was awarded a first-class certificate. They also sent Beauty of Essex, another seedling Apple, with a strong acidity. It was considered good, and the Committee desired to see it again accompanied with full particulars as to its origin. Mr. Osborn Daintree of Swavesey Manor, St. Ives, sent a seedling Apple handsome in shape and colour, but it was not thought to be worthy of special mention. Mr. Balchin of Hassocks Gate, Sussex, sent a seedling Apple which was recognised as being Annie Elizabeth, an Apple already in cultivation.

Mr. Thomas Laxton of Bedford sent a seedling Apple called The Schoolmaster. It was raised from seed of an Apple imported from America, and from a branch taken from a bush tree on the Paradise stock; it has the appearance of being a highly prolific variety. It is a cooking Apple, but has also dessert qualities. It was awarded a first-class certificate. Mr. Laxton also sent two seedling Pears which were not ripe.

The Committee passed a resolution that in future no seedling fruits will receive any attention from the Committee unless accompanied with a full statement as to its origin, place of growth, and a certificate that it is known to be a new variety; and in the case of all fruits except Pine Apples six specimens must be exhibited.

Mr. James Brown, The Gardens, Abercainey, Perthshire, sent a small bunch of the Abercainey Seedling Grape, which Mr. Brown says was raised from seed by his father-in-law forty years ago. It is therefore not identical with Gros Guillaume, but the Committee consider there is so close a resemblance between them as to be undistinguishable. Rev. A. Matthews, Yumley, Market Harborough, sent a seedling green-flesh Melon which was not equal to others in cultivation. Mr. R. Gilbert, Burghley Gardens, Stamford, sent a brace of Montrose Seedling Cucumber, which was considered similar to Telegraph. He also sent a bunch of Trebbiano and Black Alicante in very good condition, to which a letter of thanks was awarded.

Mr. W. Finlay, The Gardens, Wroxton Abbey, Banbury, sent a seedling Onion, the result of a cross between Improved White Spanish and Williams' Magnum Bonum. It was considered a fine Onion, but not an improvement on Magnum Bonum. A letter of thanks was awarded. Messrs. Backhouse & Son of York sent a seedling Onion, which was considered too much like Red Spanish to be distinct.

Mr. Barron sent from the Society's Gardens at Chiswick bunches of Gros Colman, Alnwick Seedling, and Alicante, all of which were grown in the glass wall. They were very fine, and a cultural commendation was awarded.

Mr. Wilson, gardener to Lord Fortescue at South Molton, sent eight handsome Smooth Cayenne Pines, weighing in the aggregate 59½ lbs., to which a cultural commendation was deservedly awarded, Mr. Wilson having previously had a medal.

Mr. Atkins, gardener to Colonel Loyd Lindsay, Lockinge Park, Wantage, sent six handsome bunches of White Muscat of Alexandria, three of Alicante, and three of Black Hamburg Grapes, all very fine, and to which a cultural commendation was awarded. He also sent a collection of twenty dishes of Apples, which also received a cultural commendation. Mr. Charles Ross, Welford Park, Newbury, sent three Smooth-leaved Cayenne Pine Apples, to which a letter of thanks was awarded, and also a collection of six dishes of Apples, six of Pears, six of kitchen Apples, to which a cultural commendation was awarded.

Messrs. Veitch & Sons exhibited a new Potato called St. Patrick, said to be a very heavy cropper, 4 lbs. having produced 236 lbs.; 3 lbs. 180 lbs.; and two tubers 100 lbs. Messrs. Charles Lee & Son, Hammersmith, sent a collection of sixty varieties of Potatoes. It included one called Defiance, a very long red kidney-shaped variety.

Messrs. Sutton & Sons of Reading sent a large collection of Potatoes, to which a vote of thanks was awarded. Also a similar award was given to Messrs. James Carter & Co. for Potatoes and other vegetables. The collections are referred to below.

FLORAL COMMITTEE.—Dr. Denny in the chair; there being a very large attendance of the Committee. Although the plants in the Council-room were not unusually numerous, the tables were completely filled; the brightness of colour was remarkably fine, and the general excellence of the exhibits notable. The most striking collection was that immediately facing the entrance, from Mr. H. Cannell of Swanley, who contributed stands of Salvias, Pelargoniums, and Primula blooms in extremely fine condition. Of these the Salvias attracted by far the largest share of attention, and worthily, for rarely are such brilliant and effective examples staged. The rich blue *Salvia Pitcheri* was excellent, but as it is referred to in another column it does not require description here except to recommend it to the attention of cultivators generally who desire a useful plant for the greenhouse at this time of year; and the same may be said of the others noted below, which are already moderately well known and appreciated. *Salvia splendens Bruantii* is a fine contrast to *S. Pitcheri*, the long corollas, gaping calyxes, and bracts being of a most brilliant scarlet hue. *Salvia Bethelli* has its bright rosy purple flowers thickly clustered in whorls on the upper part of the branches, with a peculiar terminal and spherical bud of the same colour. Another one was shown under the name of *S. pseudo-coccinea*, with a rather lax inflorescence and comparatively small crimson flowers. Double Zonal Pelargoniums were also fine, some of the most effective being Mr. Henry Cannell, a good scarlet; *Nympe*, white; Eugene Bandonin, pink; and *Sylvia*, pink. Trusses of Pelargonium *Beauté de Lyon* were sent in fine condition, and flowers of Mr. Cannell's strain of Primulas, including several good shades of colour. A vote of thanks was accorded.

Messrs. Veitch & Sons, Chelsea, exhibited flowers of two fine Pompon Chrysanthemums—Maiden's Blush, white with a faint lilac tinge, and Purple Pompon, good form and colour. A specimen of *Dendrobium phillipinense* with a long growth, bearing about two dozen of its faintly coloured yellow flowers, the pointed labellum of a deeper shade and streaked with maroon. A small specimen of *Cypripedium Fairieanum* was shown with a single flower, the two petals hairy on the back and margined with deep purple, the upper sepal similarly streaked and the edge undulated, the labellum being small and green. Mr. R. Gilbert of Burghley sent several profusely flowered double Primulas—White Lady, having large, well-formed, pure white flowers; Mrs. A. F. Barron, white, streaked, and tinged with pink; Lord Beaconsfield, a deep fleshy pink, very large flower, white beneath; and Marchioness of Exeter, similar to Mrs. A. F. Barron.

Messrs. Osborn & Sons, Fulham, sent a box of blooms of Gilbert's double Primulas, the trusses being unusually large. Messrs. Carter and Co., Holborn, exhibited a plant of *Griffinia hyacinthina maxima*, a pretty Amaryllidaceous plant flowering without its leaves, and bearing an umbellate scape of white and purplish-blue flowers. Mr. J. King, gardener to G. Simpson, Esq., Wray Park, Reigate, contributed several Coleuses, Mr. John Baxter being very brightly coloured. Mr. H. B. Smith of Ealing staged considerably over a hundred healthy plants of Cyclamen in 48-pots, the foliage large and finely marbled, the flowers numerous, excellent in form and colour, the crimsons and whites being particularly noteworthy. The handsome white variety Mont Blanc, certificated by the Royal Horticultural Society in 1878, was also shown with specimens of Rosy Morn, awarded a similar honour in the same year.

Messrs. Paul & Son, Waltham Cross, had a Primula with variegated foliage, and one with very large white flowers, named Waltham White. Messrs. E. G. Henderson & Son, St. John's Wood, sent a seedling Primula named Duke of Edinburgh, not particularly distinct, though the flowers were of fair form. Mr. C. J. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, submitted a flower of the Chrysanthemum Lady Selborne, the beautiful white sport from James Salter, described in another column. The Committee, while admiring it, would not award it a certificate until they have seen more flowers or a plant. An assumed hybrid Fern was shown by Mr. J. P. Kendall, gardener to H. L. Holland, Esq., Templeton, Roehampton; it was named *Pteris Prattiana*, being said to be a cross between *P. tremula* and *P. serrulata*, the fronds appearing to partake of the characters of both, but larger in size. Mr. W. Kipps, gardener to John Crossfield, Esq., Walton Lea, Warrington, had flowers of an incurved Chrysanthemum named Mrs. John Crossfield, of a faint lilac tint, but not considered sufficiently distinct to merit a certificate. From the Society's garden a number of fine single Primulas, all varieties of *P. sinensis* and *fimbriata*, were sent; among them the following were particularly fine:—*Rubra violacea*, *lilacina marginata*, Chiswick red, alba, and carmine. Messrs. C. Lee & Son, Hammersmith, sent plants of the Japanese Chrysanthemums Mons. Crousse and Clythe, with a Pompon named Sanguineum, but they were all passed. Messrs. Smith and Larke were accorded a vote of thanks for two handsome bouquets of white, yellow, and red Chrysanthemum blooms, very pretty and effective.

First-class certificates were awarded for the following plants:—

Salvia Pitcheri, *S. splendens Bruantii*, and *S. Bethelli* (Cannell).—A trio of handsome Salvias already described, and for greenhouse decoration at this time of year they can scarcely be excelled. The rich blue of the *S. Pitcheri*, the intense scarlet of *S. splendens Bruantii*, and the soft rosy purple of *S. Bethelli* are three fine distinct colours, and in combination with the free growth of the plants and their floriferousness are sufficient to recommend them to all.

Bouvardia Dazzler (W. Balchin, Hassocks Gate, Sussex).—An

attractive and floriferous variety of vigorous habit, bearing fine clusters of moderately large flowers, the limb of which is a deep scarlet, and the tube of a rosy tint.

Cypripedium Fairricanum (Veitch).—A small but pretty form of Lady's Slipper, already described.

SCIENTIFIC COMMITTEE.—Hon. and Rev. J. T. Boscawen exhibited a female branch of the inflorescence of *Chamaerops Fortuni* or *excelsa*, and remarked that the male panicle had previously appeared and fertilised a plant at some considerable distance. Dr. Masters exhibited the erect form of *Ficus repens* bearing fruit from Mr. Mitchell Henry's garden at Galway. He also exhibited a spike of female blossoms of an American Chestnut, *Castanea pumila* (?), occupying the place of the male flowers; and a remarkable fasciated specimen of a species of *Casuarina* from Baron Von Müller, Spruce and Ash branches in a fasciated condition, as well as a branch of Larch bearing tuft-like branches resembling some Brazilian Firs.

Mr. McLachlan reported on some diseased Oranges and Lemons, which were attacked with the *Aspidiotus coccinus*, sent by Mr. J. L. Giustiniani, Manchester. It was suggested by him that, although no cause could be assigned for the attack, sulphur or else "stamping out" would be the best remedy. Col. Clarke suggested the use of paraffin oil (one tumblerful of old lamp oil mixed with one bucketful of water and syringed). Mr. Boscawen suggested methylated spirit, one pint; soft soap, 3 to 4 lbs.; and 1 or 2 ozs. of camphor, as a good remedy. He also exhibited specimens of *Componotus inflatus* (Lubbock) ant, described by Sir John Lubbock, from South Australia. They appear to be workers which remain inside the nest, while other ants bring them honey. This they subsequently retail to the others as it is required. They are, in fact, "animated honey pots." He also exhibited the remarkably horned *Eucalyptus* Galls figured and described in the *Gardeners' Chronicle* a short time ago.

Mr. Boscawen exhibited specimens of *Odontoglossum Alexandræ* with the bud eaten by a maggot. Mr. McLachlan suggested that it possibly might be a *Curculio*. The maggot itself had been attacked by some parasitic Hymenopterous insect. Mr. Boscawen also exhibited *Rhododendron* leaves curiously eaten at the edges. They were lower leaves, and the general opinion seemed to be that it was due to slugs. Mr. G. F. Wilson alluded to the injury caused by galvanised wire, probably inefficiently galvanised, and said he found it to be a firm belief amongst horticulturists that the injury of rotting the wood was due to the wire. If well painted no injury ensued. Mr. W. G. Smith exhibited specimens of the fungus *Geaster rufescens* from Mr. T. Clarke, Shadwell Court, Thetford; and Pine wood eaten by some larva, showing how the animal had avoided the harder tissues, as knots, &c.

SPECIAL PRIZES FOR VEGETABLES.

On this occasion prizes were offered by Messrs. Sutton & Sons, Reading, and Messrs. Hooper & Co., Covent Garden, London, for collections of vegetables and also for single dishes of Potatoes, and in response thereto many fine collections were brought from many parts of the country. For the prizes offered by the former firm for a collection of twelve distinct kinds of vegetables there were fourteen competitors, the majority of whom staged really excellent produce. The first prize, after a long and careful scrutiny by the Judges, was awarded to Mr. J. Austen, Ashton Court Gardens, Bristol, for a generally excellent collection, consisting of Telegraph Cucumbers, Orangefield Tomatoes, Leicester Red Celery, Nutting's Dwarf Red Beet, James' Intermediate Carrots, Canadian Wonder Beans, Lapstone Kidney Potatoes, Veitch's Self-protecting Cauliflower, and Imported Brussels Sprouts. Mr. J. Roberts, gardener to the Baroness de Rothschild, Gunnersbury Park, Acton, secured the second prize; the third going to Mr. J. Muir, gardener to C. R. M. Talbot, Esq., Margam Park, South Wales; the fourth to Mr. W. Iggulden, Orsett Hall Gardens, Romford; and the fifth to Mr. S. Haines, gardener to the Earl of Radnor, Coleshill House, Berks—all following each other closely with their respective exhibits. Mr. Roberts' best dishes were Tender and True Cucumbers, Hepper's Goliath Tomatoes, Snowball Turnips, and Horn Carrots. Mr. Muir's collection comprised a good dish of Crossling's Glamorgan Tomatoes, good Carter's Jersey Lily Turnips, Suttons' King of the Cauliflowers, and Gilbert's Cabbage Broccoli, shown in this instance as a Cabbage. Mr. Iggulden staged good examples of Major Clarke's Solid Red Celery, Snowflake Potatoes, and Veitch's Autumn Giant Cauliflowers. Mr. Haines showed good Trophy Tomatoes, and Suttons' Improved Reading Onions. The Brussels Sprouts were shown throughout as growing, and were a prominent feature in the display.

Onions.—There were twelve dishes of Suttons' Improved Reading Onions staged, the first prize going to Mr. J. Austen for very fine examples; the second to Mr. J. Lye, Cliffe House Gardens, Devizes; and the third to Mr. S. Haines, both staging heavy specimens.

Potatoes.—Twenty-seven dishes of Suttons' Magnum Bonum were staged, the three prizes going to Mr. J. Howard, Bridge, Canterbury; Mr. F. Miller, Northdown, Margate; and Mr. G. J. W. Andrews, Dorchester, in the order named, all staging very fine examples of this popular variety. Only six dishes of Suttons' Reading Abbey were staged, the best being from Mr. W. Meads, gardener to Viscount Barrington, Beckett Park, Shrivenham; the second prize going to Mr. W. Iggulden; and the third to Mr. J. Phillips, gardener to Captain Jackson, Meopham, all staging creditably. Of Suttons' Woodstock

Kidney there were thirteen dishes staged, the first prize being awarded to Mr. W. Iggulden for rather small but clean and well-shaped tubers; the second prize going to Mr. R. Phillips, and the third to Mr. C. Ross, Welford Park, Newbury. Several fine dishes were staged, which, however, were passed on account of being greened by exposure at a previous show.

Messrs. Hooper & Co. offered prizes for the Beauty of Kent Potato, and for these there were five competitors. Messrs. C. Ross, W. Iggulden, and R. Phillips received the awards in the order named, all staging good examples of this superior-looking Potato. For the prizes given for a collection of nine dishes of vegetables, to include Hooper's Acme Tomato, Hooper's Market Favourite Onion, Beauty of Kent and Pride of America Potatoes, there were only two competitors. Mr. R. Phillips was awarded the first prize for a collection which, in addition to good examples of the stipulated varieties, comprised good selected Brussels Sprouts, Musselburgh Leeks, Canadian Wonder Beans, James' Intermediate Carrots, and Autumn Giant Cauliflower. Mr. W. Iggulden secured the second prize for a collection slightly inferior.

A TABLE running through the whole length of the vestibule was filled by Messrs. Carter & Co., London, with an assortment of well-grown vegetables, among which several of their novelties were well represented, and nearly a hundred varieties of Potatoes. Very prominent among the former were some fine examples of Carter's Ruby Tomato, an extremely bright red variety of fair size and good shape; Carter's Jersey Lily Turnip, a good type of the Snowball; Carter's Perfection Beet, Carter's Incomparable Crimson Celery, and a number of Kales and Savoys. Of Potatoes they exhibited fine heaps of Carter's Improved Magnum Bonum, Carter's select stock of Scotch Champion that were grown at Sandringham. The general collection comprised good examples of the new Wormleighton Seedling, Edgcott Seedling, Porter's Excelsior, Purple Ashleaf, Blanchard, Beauty of Kent, and the new Early Eight-weeks.

Messrs. Sutton & Sons likewise staged fine heaps of Potatoes, the most prominent being Suttons' Magnum Bonum, Suttons' Woodstock Kidney, Suttons' Reading Abbey, Suttons' Redskin Flourball, and Schoolmaster. In addition they had good dishes of all the leading varieties, including Fox's Seedling, Triumph, Covent Garden Perfection, Rector of Woodstock, Red Ashleaf, Snowflake, Early Hammer-smith, Vicar of Laleham, Lye's Favourite, St. Patrick, Porter's Excelsior, Red Fluke, Bedford Prolific, and Bresee's Peerless. Messrs. Suttons also staged fourteen seedling Potatoes, among which were several raised by Mr. R. Fenn that have passed into their hands. Some of them were of very promising appearance, and are said to be good disease-resisters.

LECTURE ON THE CHRYSANTHEMUM.

THE following is the substance of the Rev. G. Henslow's lecture on the Chrysanthemum, delivered at the above meeting. The lecturer called attention to some of the more important species in cultivation—viz., *C. segetum*, the Corn Marigold of our fields, was cultivated early in the eighteenth century with both single and double varieties; the Ox-eye Daisy being another British species, *C. leucanthemum*. Of foreign kinds *C. coronarium*, the "Garland Daisy," is said to be a culinary vegetable in China. *C. frutescens*, from the Canaries, with yellow and white varieties, is the Marguerite of the French; the principal species of garden Chrysanthemums being *C. sinense*, *Sabine*, and *C. indicum*, *Linum*, or the "Chusan Daisy" of Japan.

The first notice of the cultivation of *C. sinense* in Europe appears to be of those grown by Jacob Breyn in 1688 at Dantzic, who had "bright rose, snow white, purple, dull yellow, flesh-coloured, and crimson" varieties. A plant of *C. indicum* was in the Chelsea Gardens in 1764, but was soon lost. M. Blaneard had three forms, a white, purple, and violet, growing at Marseilles in 1789, and from thence Mr. Colville of King's Road, Chelsea, grew a dark purple semi-double form in 1795. This appears to have been its first introduction into England. Yellow and other colours were introduced in 1802 and following years till ten varieties were grown in 1808. They increased to forty in 1827. In 1846 Mr. Fortune introduced the Chusan Daisy and Chinese minimum form of *C. indicum*, and the origin of the Pompons, for the first successful cultivation of which we are indebted to France. The number of forms then rapidly increased, till in 1860 no less than 750 varieties were growing in a single garden!

Mr. Fortune in 1860 collected several curious forms from the Japanese gardens. He left them at Shanghai while he went to Peking. On his return he found all were dead but two or three. These reached Mr. Salter of Hammersmith, who raised from seed varieties which proved to be identical with those Mr. Fortune had lost. Chrysanthemums have been long cultivated in Japan and China, and it is said that he who can produce the largest flower bestows most honour on his guest. One variety is called the "Drunken Woman," as it has small pendulous flowers in the morning and evening, but which are erect during the day. In the gardens at Yeddo imitation ladies are built up of these flowers.

With the regard to the origin of the variations, they are due to changes undergone by the disk or centre florets, naturally tubular with a regular border, for the wild original forms were not larger than a sixpence, and with "ray" and "disk." When a disk floret becomes like a ray floret it not only enlarges but suppresses two

petals and splits all the way down, so that the "ligulate" or strap-shaped florets have only three petals. When they are rather broad they give rise to the incurved and reflexed forms, according as they show the under or upper side of the florets. When they are narrow the flower resembles the Japanese original form with slender tapering petals. On the other hand, if the tube elongates without much splitting we get the tasselled, quilled, and Dragon forms. In the first the tube splits only for a short distance into a broad flat piece at the end, in the second the border is reduced, but in the third enormously enlarged with the teeth increased in number. This last resembles the ray florets of the Cornflower, which is much enlarged under cultivation, and has its teeth increased in number also.

WINTER PROTECTORS.

If plants and crops which are liable to be injured by frost or severe weather have not already been covered up, or provision made for doing so directly it is required, no time should now be lost in making the necessary arrangements. At one time we were not very particular about this, as we could almost depend on being without severe frost to nearly the end of the year; but times have changed, and protectors are wanted frequently as early as October, and we can hardly be said to be independent of them for at least six months in the year. Mats, woollen and other cloths, straw, hay, leaves, fern, and ashes, are some of the materials which may be used for protecting, and a good store of one or all should be at command according to the extent of covering to be done. Vegetables are not the least important of the crops to be protected. I am annually gaining knowledge and experience in the kitchen garden, and the impression is increased that if any gardener wishes to do credit to himself and give the highest satisfaction to his employer, the vegetable supply must be unlimited. There are a few, but very few, who have no demand on them in winter for vegetables, but the demand upon the majority is greater at that time, and, therefore, protecting the crops so as to retain their high qualities and the quantity as well, is of the utmost importance.

A good root shed is an actual necessity in all gardens. It may not be warmed artificially, but it should have a waterproof roof, and protectors should be used inside when necessary to exclude severe frost. Parsnips, Salsafy, and other roots are often left in the ground for the greater part of the winter. They keep very well under these circumstances, but they are better if covered to the depth of a few inches with coal ashes, short straw, hay, or leaves during severe frost; and it is very convenient if a number of them are lifted before the ground becomes frozen very hard and stored in the root shed for use. Besides this being very handy, it is satisfactory in many ways; as although Parsnips, Salsafy, and Turnips come all right again when thawed after being frozen, they are not by any means so good when taken and thawed quickly immediately before cooking.

Celery is another valuable winter crop, and it is also easily injured by frost. It is important to have it thoroughly protected early, because if once affected by frost it will fail to keep well afterwards, although the weather may become mild. A quantity of straw or fern placed closely round the neck of each plant and a little thrown over the top will be useful, but if more effectual protection can be employed so much the better. I have lately had a number of wood covers made that are excellent for protecting Celery. They are of various sizes, and resemble in shape little span-roofed houses. The great benefit of these is, that while they keep out much frost they allow no wet or snow to rest on the plants they cover; and this is a great advantage, as so long as the leaves can be kept dry little loss will occur. Parsley, Spinach, and Celery may be protected by these wood covers. Cauliflower, Brussels Sprouts, Savoys, and other greens also need protecting, especially the first named. It is a good plan to examine the plants once or twice a week, and tie the leaves over the heads. Those large enough to cut may be lifted and placed close together in the root shed, or the heads may be cut off with a little of the stem attached, and by inserting this in damp sand in the root shed the head will remain good for some weeks.

Lettuce and Endive must also be protected. If lifted now and placed in dry frames few will be lost. A flower pot inverted over each plant is also a good mode of protecting the plants from frost. Rhubarb, Seakale, and Asparagus should be covered over to the depth of a few inches with some manure. Plants in frames should be kept dry in the leaves, and plenty of straw or fern should be thrown over the frames in severe weather. Cuttings of Calceolarias and Pansies in beds near walls must have the same attention. Small shrubs of a tender character can be drawn together, tied, and then thatched round with straw or old mats. Any tender bush against a wall should be served in the same way. Bulbs and roots in the ground which may be injured by frost may be covered over with decayed manure. This is better for most

plants than ashes. Fruit trees, Rose bushes, and all that have been lately transplanted may have a layer of manure over the roots. Glass houses are rarely protected outside. The greater the cold the more the fire heat employed; but outside protectors might also be advantageously used in various ways. I especially refer to the large houses, on many of which in summer the shading material is on rollers; but they are all taken away in winter, though in many instances I think they might be of more advantage in winter than summer, especially if a good thick material were employed. I have found a good covering outside during frost and snow keeps the temperature up better than nightly consuming an extra hundredweight or two of coal.—A KITCHEN GARDENER.



KITCHEN GARDEN.

THE present is a good time to effect any improvement in the various soils, especially those of a stiff adhesive character, which should be placed in ridges in order that as large a surface as possible may be exposed to atmospheric influence. Such soils will be permanently improved by the addition of ashes, charred vegetable refuse, and an occasional dressing of lime. Forking over heavy soils on dry frosty mornings is a capital means of pulverising them and securing a good tilth, but working during wet weather must not be practised. Light soils are not so much benefited by exposure, but no opportunity must be lost of improving them by the addition of such materials as marl, clay, or lime. Trenching is an important operation, and should always be performed with judgment, as to bring up a subsoil of clay or the "brash" of light or gravelly soil does not add to their fertility. After throwing up the good soil loosen that beneath with a pick, and leave it there for a time, bringing up a little at each subsequent trenching, increasing the depth of soil by stirring. In some very light soils winter digging is not advisable, except as a means of destroying annual weeds.

Forcing Department.—In order to obtain a liberal supply of forced vegetables active operations will now be imperative; and if such as Asparagus, Seakale, and Rhubarb have had their growths early developed and matured, the crowns will break freely and strongly with less forcing, and the produce will be finer. Early forcing is best effected by subjecting the plants to the heat of fermenting materials, especially in the case of Asparagus. Seakale, Rhubarb, and Chicory also succeed very well in the Mushroom house. For Asparagus pits are most suitable, having space for sufficient fermenting materials to maintain a temperature of 70° to 80°, with one or more hot-water pipes for securing top heat in severe weather. The pits must have moveable lights to admit of ventilation at suitable times. Asparagus may also be successfully forced in frames over dung beds. To ensure a supply at Christmas a bed composed of about half stable manure and leaves may now be prepared, rendering it firm and covering with 3 inches depth of light rich soil. When the heat does not exceed 80° nor is less than 70° the roots should be introduced, spreading them out and placing some rich soil amongst them, supplying water at the temperature of the bed, and then covering with 2 or 3 inches of finely sifted spent tan or cocoa-nut fibre refuse. A temperature for the frame or pit of 60° to 65° is suitable. Introduce more roots of Rhubarb and Seakale to the Mushroom house, and where Chicory is employed for salad treat it similarly, placing roots in pots or plant them in rich soil. Supply tepid liquid manure as necessary to crops of the above. French Beans must have a light position and not a close stagnant atmosphere, but avoid cold draughts or the pods will be stunted. Make further occasional sowings according to the demand and space. Sow Mustard and Cress according to the demand. Potato sets for early forcing in pots or beds may be inserted in leaf soil for sprouting preparatory for planting, a moderate heat being necessary to accelerate the process. Dwarf Peas are sometimes forced, but unless ample accommodation is at command in a light airy structure the return is not very satisfac-

tory. Blue Peter, Little Gem, and Early Premium Gem are best for the purpose. They may be grown in boxes or pots. Where forcing is extensively carried on it is important to have a good supply of fermenting materials ready for immediate use, and now that leaves are obtainable this must not be neglected. Whenever the weather is favourable freely ventilate the frames containing Lettuces, Endive, Parsley, Cauliflowers, and Radishes, having the requisite protective materials at hand for prompt application in severe weather, but employ them only to exclude frost, for the hardier the plants are kept the safer they will pass the winter.

FRUIT HOUSES.

Vines.—Early and permanently planted Vines which are expected to furnish ripe Grapes by the end of May should have the final dressing, especially if there have been any scale or mealy bug, and whatever is necessary in the way of repairing or cleansing the house must be completed at once. The house should be closed at the beginning of next month, and to economise fire heat and secure a moist genial atmosphere a good bed of leaves and stable manure in about equal proportions may be placed upon the borders and turned over at short intervals, adding fresh material as the heat decreases. Old Vines that have been forced some years start readily, but young Vines do not break so quickly, and should be started about a fortnight earlier or at once. The former also require more heat to induce growth, a temperature of 50° to 55° at night being suitable, and 65° in the day from sun heat. Old Vines will break freely and regularly with a temperature of 50° at night, but young Vines will need to have the canes slung in an horizontal position over the fermenting materials until the buds have started. The Vines must be syringed frequently during the day with water 5° to 10° warmer than the atmosphere of the house. Frequently turn over the fermenting material in the earliest house, adding fresh as the heat declines, and for Vines in pots plunged also maintain the heat by additions when needed. The latter may be placed on pedestals of brickwork in the bed. The earliest started Vines in pots may now have the temperature increased a few degrees with advantage, increasing the atmospheric moisture proportionately. Not much ventilation will be necessary, and what is requisite should be given at the top of the house, and if some netting be placed over the ventilators it will prevent the in-rush of cold air.

Ripe thin-skinned Grapes such as Black Hamburgs still hanging cannot be kept too dry, affording moderate heat with liberal ventilation on fine days, maintaining a steady temperature of about 50°. This should be continued until the Vines are leafless, when, if plants have to be wintered in the house or the roof is not as waterproof as might be desirable, the Grapes had better be cut with portions of the stem placed in bottles and conveyed to the Grape room, or they will keep well enough in the house with such late varieties as Lady Downe's. Late Grapes are now ripe or they never will be, nothing being gained by sharp firing to make up any deficiency after the wood is ripe; the additional fire heat will probably only accelerate the shrivelling of the Grapes. If the defective finish be a consequence of overcropping the Vines may be eased by cutting a portion of the crop.

Cherry House.—The lights removed from this structure must be replaced at once. Attend to pruning the trees, but if the shoots were stopped during the season of growth it will only be requisite to shorten those shoots back to about an inch from their base. The terminal shoots should not be cut back unless necessitated by lack of space, or when it is desired to increase the shoots next year. All decayed spurs must be removed. Young trees which are in course of formation will also require to have the central shoot cut back as may be necessary to provide the growths to fill up the allotted space with regularity; the house should then be thoroughly cleaned, and the trees dressed with an insecticide. Train and tie the trees; remove all the loose material from the surface of the border and any inert soil from about the roots, but do not disturb them, finishing with a top-dressing of 2 to 3 inches thickness of good decomposed manure. Ventilate the house freely except during frost. To have ripe fruit early in May the house will need to be closed early in December.

Cucumbers.—Cold easterly winds have necessitated sharp firing

and the exercise of great care in the admission of air, which, whilst a little should be given at every favourable opportunity, it certainly should be excluded as far as practicable when it is brisk and cold. During bright sunshine in such weather turn off the top heat so as to lessen the need for ventilation, and maintain a good amount of moisture; but in dull weather, especially when foggy, be very sparing of moisture. Examine the growths regularly every week in stopping and thinning, removing bad foliage. During severe frosty nights the covering of the lights will lessen the need for sharp firing, and this will prevent the distressing effect of a parching atmosphere, which is never so disastrous as during the night.

Pines.—Strict attention must be given to the ventilation of pits or houses containing young stock, as the plants will soon become weakly. To keep young stock slowly growing temperatures of 60° at night, falling to 55° on cold mornings, and 65° in the daytime, are suitable. At 65° admit a little air at the top of the house or pit, and unless the temperature falls below that point continue the ventilation throughout the day. When by external influence the temperature attains 75° allow a free circulation of air through the house, keeping the plants near to the glass, and allow each plenty of space, maintaining the heat at the roots steady at 80°. Do not have too much moisture in the house, and water the plants whenever they become dry with weak liquid manure. If there is likely to be a deficiency of suckers for starting in spring keep those which are ready now either by detaching and potting them in 5-inch pots, or preferably preserving the suckers on the stools of the plants after the fruit is cut, and place them together in a moist pit near the glass in a bed having slight bottom heat and a temperature of 55° at night, keeping them moderately dry at the roots.

PLANT HOUSES.

Stove.—Gardenias that are desired to flower shortly if well furnished with buds may be placed in a brisk moist heat of 70° in a light position, and not too saturated with water at the roots, or the buds will fall. With sufficient stock the highly fragrant flowers of these plants can be had all the year round, but during the winter they are most acceptable. *G. intermedia* is by far the best variety, the flowers of *G. citriodora* when mounted also being fine for bouquets. Some of the winter-flowering plants—such as Poinsettias, Aphelandras, Centradenias, Eranthemums, Justicias, Plumbagos, Sericographises, Centropogons, Thyrsacanthuses, and winter-flowering Begonias—should be brought gently forward in a temperature of 60° to 65°. Abundance of light is essential; indeed, they cannot be too close to the roof lights, providing they do not touch the glass. The reserve stock of the above intended for successional flowering must not be neglected or allowed to remain where they be chilled and lose their roots, or the flowers will be unsatisfactory. A temperature of 50° to 55° will suit them, giving no more water than is necessary to keep the leaves and roots from being injuriously affected. *Euphorbia jacquiniæflora* must be kept in the lightest position the house affords, or the flowers will be of an orange red colour instead of the fiery scarlet, for which it is so much prized. Where a miscellaneous collection of stove plants have to be accommodated in one house it becomes a difficulty to manage the whole satisfactorily, as some are being brought on for successional flowering during the winter whilst others are at rest. Market growers, who grow but few plants and have houses for each, do them much better than the private grower. Where, however, all have to be placed together a compromise is needed both in heat and moisture, arranging those at rest at the cooler end of the house, and those requiring more heat at the warmer end, using as far as possible the moisture at this end, and not here admitting any air, giving it only at the coolest end. Plants partially deciduous—such as Clerodendrons, Aristolochias, Bougainvilleas, and Allamandas—may be for weeks without water, but the wood must not be allowed to shrivel. Stephanotis should also be kept dormant by dry treatment, yet the leaves must not become very flaccid or they will fall. Evergreen plants, such as Ixoras and Gardenias, must have a sufficient supply of water to keep the foliage in good condition. Ixoras, Dipladenias and Allamandas should never have a lower temperature than 65° at night.

Cyclamens.—Those plants that are now producing their flowers

should be kept near the light in a temperature of 50° artificially, which applies equally to successional plants and seedlings of the current year. Any seedlings in small pots may be shifted, employing good loam with about a fourth of decomposed manure.

Primulas.—These do not thrive in damp cold houses, therefore place them near the glass, and where the temperature is kept at 45° to 50° artificially, in which they will continue flowering all the winter profusely. The double forms are excellent for producing flowers for cutting, as they last much longer than the single varieties. The semi-double varieties are also good for cutting, and have the advantage of being better growers than those which are perfectly double.

Fuchsias.—All of these that have finished blooming should be gradually ripened. Withhold water gradually, so as to keep the wood plump. They may be wintered under open greenhouse stages, or in any light dry spot where they will not be subjected to very severe frosts.

Zonal Pelargoniums.—Plants grown and specially prepared for winter flowering should now be placed where they will receive extra heat, 50° at night, and 55° to 60° by day, whilst those to succeed them must have a temperature of 50°, and be given sufficient water to keep them slowly growing.

TRADE CATALOGUES RECEIVED.

Bruant, Boulevard Saint-Cyprien, Poitiers (Vienne), France.—*Catalogue of Trees and Shrubs.*

James Backhouse & Son, York.—*Catalogue of Trees and Shrubs.*

Ouidin, aîné, Liseux (Calvados), France.—*List of Trees and Shrubs.*



* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Asphalte Tennis Ground (Johnson).—If the site is very wet it is very desirable that it be drained, and the asphalted portion would be more durable.

Osmunda regalis (H. Pierce).—It is not confined to Europe, but has been found near the Himalaya Mountains between Choi and Kot.

Horn Manure (H. F. C.).—We do not know where the above manure is to be had in Scotland.

Culinary Apples (A. B. C.).—The following are six good varieties for succession, being hardy and free bearers:—Keswick Codlin, Cellini, Stirling Castle, Beauty of Kent, Warner's King, and Dumelow's Seedling.

Double Primulas (J. Bartlett).—The flowers sent are very fine, some of them being quite equal to the varieties that have been exhibited by Mr. Gilbert of Burghley.

Mistletoe (G. N.).—It occurs in some parts of India. Mrs. Aynsley states that they found it in the valley of Kashmir growing on the Walnut trees, which there are numerous, the nut being a prominent part of the food of the natives.

Seedling Abutilon (A. J. S.).—The flower is of good form, but there are several varieties quite equal to it in that respect, and some of them of a clear bright yellow colour. Your variety is worth cultivating, but it possesses little or no commercial value.

Growing Seakale (Lobster).—If the district is a dull and showery one you may possibly succeed in growing Seakale on the steep bank facing the sea, especially if you cover the surface of the ground thickly with manure. If the locality is a dry one you cannot expect to obtain large crowns from such poor gravelly soil.

"Herefordshire Pomona" (A. F.).—Three parts of the "Herefordshire Pomona" have appeared. They are published annually, and the price of the first two is 15s. each. The next part, which is larger than the preceding is 21s. The work is expected to be completed in seven parts.

Painting Glass Structures (K. W.).—We do not undertake to supply information on this and kindred subjects that are strictly within the province of tradesmen. A more correct idea of the cost of all such work can be obtained by inviting two or three tradesmen to supply tenders for completing the work than can be afforded through the columns of any journal.

Propagating Palms (L. C. L.).—You will not succeed in propagating your Palm by "dividing it into smaller pieces," and if the specimen has become

too large for table decoration it should be grown on for the stove or greenhouse according to the treatment it requires. Palms are raised from seeds which are imported in large numbers, and generally raised in pans of light soil in bottom heat, but young specimens may be obtained at moderate prices from the chief nurserymen.

Vines in Pots (J. S.).—No variety is equal to the Black Hamburgh for fruiting in pots, and we should grow but few of other varieties. Foster's Seedling is one of the best bearers of the white varieties for the same purpose. The Frontignans are suitable for pot culture; the bunches are not large, but the flavour of the fruit is excellent. The Primavis Frontignan, Tokay Frontignan, and the Early Auvergne Frontignan are good varieties; you had better, however, rely chiefly on the Black Hamburgh. From five to ten bunches, according to their size, may be retained on each Vine. The leading growth should be stopped at five or six leaves beyond the bunch.

Raising Seedling Briars (J. H. W.).—You may sow the seeds now thinly in drills a foot apart, covering them with light soil containing a good proportion of wood ashes. The whole of the seed will not germinate the first year, therefore the ground must always be kept scrupulously free from weeds. When large enough the seedlings may be transplanted 6 or 8 inches apart in rows 18 inches asunder, there to remain and be budded. The seed beds must be kept quite free from weeds, and the seedlings may be transplanted as soon as they have shed their leaves in the autumn or in early spring.

Striped Double Stock (L. M. N., Dublin).—The flowers are attractively flaked with purple on a white ground like a rose flake Carnation. The growth resembles that of the East Lothian Stock, but is insufficient for us to determine the point. Unless you have single flowers similarly striped you will not be able to perpetuate the variety. We have seen flowers of the German Ten-week Stock striped, but not quite so clearly as those before us. If you show a flowering branch to Mr. F. W. Burbidge, the Curator of Trinity College Botanic Gardens, he will be sure to have something to say worth bearing on the sportiveness of flowers.

Narcissus Bulboeodium in Pots (R. D. G.).—Bulbs of various kinds that are potted and flowered in greenhouses very frequently produce tall, thin, and imperfect foliage owing to the plants being placed at some distance from the glass and probably crowded; they cannot then obtain the light and air necessary for producing healthy foliage, without which flowers the following year cannot be expected. Too often also after bulbs have flowered the pots are placed in the most unlikely of positions for the full development and maturation of the foliage of the plants. If the same care were bestowed on the plants after they have flowered as before, they would be in much better condition for flowering a second year than is the case under the treatment to which they are generally subjected.

Old Vine not Bearing (Midland Counties).—Vines so old as yours are not infrequently cease bearing out of doors when pruned on the spur system. As you are unable to apply manure to the roots to impart fresh vigour to the Vine we advise you to cut out every alternate vertical rod nearly close to the horizontal main, and near a bold eye or bud if possible; fresh growths would start, and the strongest could be selected and trained up the wall in place of the rods removed, these young canes only being shortened at the winter pruning to the extent of removing the immature portion. Another year, or when you desire it, the remaining rods can be removed, and so your wall may be covered with young canes without wholly divesting it of the Vines, which might be objectionable. Vines on walls usually bear the best crops when the old roots are systematically removed, young canes trained up, and all the growth retained that is hard, brown, and firm; in a word, we think if you substitute the long-rod for the short-spur mode of pruning your chance will be very much greater of obtaining fruit. If the Vine does not bear when so treated you may conclude it is either worn out or the variety is unsuitable for outdoor culture.

Vines Overcrowded (J. E.).—Two rods will be quite sufficient in the space you name; in fact, there is not properly room for two unless the spurs are very thinly placed on them. Cut out the old rod and remove a number of the weaker spurs from the others, so that those remaining are about 15 inches apart. The spurs may be removed at once with a small toothed saw, paring the cuts smoothly with a sharp knife, and dressing them with lead-coloured paint. You have done quite right by training up a young cane from the base of the other Vine. The old rod may either be cut out entirely or have all the spurs removed from the lower portion as far as the young cane reaches after it is pruned, or a little farther. A length of about 4 feet will probably be sufficient for the young cane; and if the buds or eyes on this are numerous, the young growths can be thinned out in spring when they are an inch or two in length, retaining those that are the most promising and which show the best bunches. It is no trouble to us to reply to questions on gardening when we can do so usefully, and if you need further information you need not hesitate to write to us again.

Angle and Ventilation of Vinery (A Nine-years Subscriber).—The angle of the house, 45°, is quite suitable for Vines, but the ventilation at the top of the house is insufficient. This may be remedied by making every alternate light movable. As the roof is heavy the Vines must be planted thinly, those of the Gros Colman being fully 4 feet apart, and the others not less than 3 feet 6 inches. The house would be more suitable for Grape culture if every alternate sashbar were removed and the roof glazed with larger squares of glass, yet you may probably succeed without this alteration if the laterals are trained very thinly so that one leaf does not overlap another. If you make a good border and plant inside the house, allowing the roots access to a good outside border also, you ought to succeed in your object.

Vines in Ground Vinery (F. C.).—The removal of the vinery to a position where it will have more sun will undoubtedly be advantageous. The summer of 1879 was very dull and wet, consequently the wood of many Vines, also of fruit trees, was not matured. Your object must be to so place the vinery and train and prune the Vines that every leaf can have full exposure to the sun. For this purpose many of the young shoots must be rubbed off in the spring, leaving the laterals that remain 18 inches apart; these, too, must be stopped a leaf or two beyond each bunch, or where there are no bunches at about six leaves from the base; all aftergrowths, sub-laterals, to be pinched out immediately they are formed at one leaf and before a second leaf is produced. By adopting this practice you will have good foliage, no useless growth, and matured wood of a fruit-bearing character. If the foliage is still on the Vines you may remove them now, doing the work carefully, not permitting the roots to become dry; replant in fresh soil, covering the surface 5 or 6 inches deep with half-decayed manure, and fresh root-action may commence at once. If the Vines are divested of their foliage prune them now, and remove them in spring when the buds commence swelling. Burnt soil and wood ashes are excellent for mixing with the soil in which the Vines are planted. Your Vines may produce a few bunches next year if the wood is ripe now, but they must be cropped lightly until they are established in the new position. We suspect your Vines have been much

too crowded with lateral growths, and in that condition Vines never produce good crops of fruit.

Forcing Asparagus (A Beginner).—When the roots are taken to a hotbed the bottom heat should never be above from 75° to 80°; if there is the least danger of the heat being more the roots should merely be left on the surface, and be slightly covered after watering, and then 2 or 3 inches more covering should be put on as the heat declines. The details of these matters are of primary importance to the inexperienced. For an early Asparagus bed we seldom use a hotbed all of fresh materials, but select an old hotbed which has been used for Cucumbers or Melons. The soil is taken off, also the most decayed part of the dung; that which is not quite rotten is stirred, mixed with hot tree leaves or other fermenting material, and 2 inches or so of the dung placed on the surface. On this are packed the numerous spreading roots, taking care not to let them get dry, putting in the first row as close as it is possible to do without the buds touching. A little leaf soil and sandy loam is scattered on the long roots, then the next row of roots is placed over them with the buds on a level with the first row. In this way a large number of roots can be packed in the space of a single light of 6 feet by 4. When all the roots are packed in, a sprinkling of light soil is thrown over them, and water is given at a temperature of about 65°, so that the fibres of the long roots may have no check. When sure that there is the proper heat, 50° to 60°, add a couple inches or so of covering, for, where green shoots are preferred, covering for blanching is quite unnecessary.

Names of Fruits.—We have received several parcels of fruit which will have attention next week.

Names of Plants (G. B.).—Both specimens were very much withered, especially the one with red flowers, which, however, is probably *Clerodendron fallax*; the other is *Antennaria tomentosa*. The *Antennaria* may be propagated by division of the plants. (W. G.).—1, *Maranta zebra*; 2, *Begonia Marshalli*; 3, *Adiantum assimile*; 4, *Gymnogramma peruviana*; 5, Insufficient for identification owing to the absence of fructification; 6, *Pteris longifolia*. (W. A. C.).—1, *Retinospora pisifera*; 2, Golden Milkmaid Holly, ordinary kind; 3, *Ilex scotica*; 4, *Juniperus drupacea*; 5, Golden Milkmaid Holly, best variety; 6, *Thuja borealis argentea variegata*; 7, *Chamaecyparis sphaeroidea variegata*; 8, *Cupressus Lawsoniana lutea*; 9, *Thuja dolabrata*; 10, *Spiraea Thunbergii*. (L. T. Last).—We received some sprays of *Selaginella*, but they were so small and withered as to be quite unrecognisable. If you will send large and fresh specimens they shall be named if possible.



POULTRY, PIGEON, AND BEE CHRONICLE.

BREEDS OF CATTLE ADAPTED FOR DAIRY FARMING.

(Continued from page 449.)

As the late Dairy Show, held at the Agricultural Hall in London, suggested this subject we shall continue to take for consideration the breeds as they stand on the catalogue of the Association. Having previously made remarks upon the Jersey cattle we had intended now to examine the comparative richness of milk of the various breeds, but the returns relating the analyses by Dr. Voelcker are not to hand; we must therefore fall back upon our experience of more than fifty years.

Although the Jersey and Alderney cattle yield milk of fine quality for butter-making, yet we have always found the Guernsey breed excel them in the richness of their milk and deep colour of the cream. We have always been accustomed to purchase our Channel Island cattle of the importer immediately on landing in this country; we are thus enabled to speak of either breed as pure-bred stock. We can therefore certify that no breed will yield such rich milk as the Guernsey cow—in fact, we only recommend them as dairy cattle in connection with other cattle in order that the butter may be improved in quality and colour by the mixture of the milk in such proportions as will yield butter of fine cow-slip colour. In attempting to use the Guernsey breed alone for a butter-making dairy there is a great difficulty in summer time in making up the butter into pats or printed articles for sale, as it is sometimes found to run almost like oil, and nearly as deep in colour as beeswax. As this was how we found matters we were obliged to give up an entire Guernsey herd for butter-making, and keep them in part only with ordinary milking Shorthorns. The Guernsey cattle of the pure type are distinguished by their being much larger and heavier than the Jersey, and their capacity for yielding rich milk is easily discovered by ascertaining the colour of the skin inside the ear and on the tail of the animals, which is

of a deep yellow colour, much more so than the Jerseys, although the same in degree is a sign of quality of milk in those also. Before quitting the Guernsey stock we must observe that although the milk is so much richer than the Jerseys, as a rule they do not yield so much milk, especially when we consider that they are larger animals. They are, however, more hardy, and of considerable value when being fed for beef, as they always carry more flesh whilst in milk than the Jerseys.

We must now refer to the Ayrshire cattle as being good milkers, but yielding only a low quality, more like the Shorthorns. On referring to the origin of this breed we find it related that Quale, who wrote the "Agricultural Survey of Jersey" many years ago, states "that the Ayrshire was originally a cross between the Shorthorned breed and the Alderney." Our opinion is that they are more likely to have originated in a cross of the old Normandy cattle and the Dutch or Holstein breed, for we should look at the head and horn, and also the deep and even body on the under line, and the shape of the udder placed, as it usually is, very forward. As these points are not peculiar to the Jersey breed we are induced to give our opinion as above stated. However, be the origin what it may, these cows are excellent milkers, and will live on the highland pastures with the mountain sheep, and being enabled to bear the climate of the northern counties and Scotland this at once to our mind stamps them as being of other origin rather than either a Shorthorn or Jersey cross.

The Dutch or Holstein cattle must now be noticed as being very large cows and useful dairy cattle. At the Dairy Show there were eighteen entries, and we considered it the best collection of these animals ever exhibited in England. This stock has for many years been appreciated by the dairymen and cow-keepers in London and other towns as useful dairy cattle, and usually purchased at a moderate price, some of which are well calculated to feed for beef also, although they are generally light of flesh, being also thin and of a wedge-like shape in the fore quarters, which circumstance marks them in our estimation as especially adapted for dairy purposes. Whether we take the best milkers in Shorthorns, Ayrshires, Jerseys, or Dutch cattle, this lightness of the fore quarters, and especially of the narrow shape immediately behind the shoulder top, is as a rule the chief characteristic of great milking capacity: hence the difficulty found by the most eminent and practical breeders in maintaining a herd where aptitude to fatten with correctness of form and outline shall be combined with first-class milking powers. If we remember rightly, at last year's Dairy Show the prize for the largest quantity of milk at two milkings was awarded to a Dutch cow, but her milk when tested by Dr. Voelcker gave only 2½ per cent. of fat and a total of only 8½ per cent. of solids, a quality so low that it is actually below the standard as required for pure and unadulterated milk. There can, however, be no doubt the Dutch cows are so far in favour with cow-keepers as to find a ready sale in this country, if only the Dutch authorities will adopt stringent rules and sanitary regulations similar to those adopted in England against pleuro-pneumonia and foot-and-mouth disease. At present we find Dutch cattle are credited with the spread of both these disorders by their importation of cows into the Deptford market. Now in order that farmers may not be deceived in purchasing Dutch or Holstein cattle, it must be stated that they are nearly all of a black and white or tawny and white colour.

The Kerry cattle at the Exhibition were not numerous, but the first-prize winner was very well bred and showed a capital udder. These animals are small but well made, and are usually of a black or dark brown colour; they are also credited with giving a fair quantity of rich milk, even when they are fed upon cold strong land pastures, and have the character, too, of being hardy and healthy whilst feeding on short poor food. Considering they are

very small animals, they fatten very quickly when out of milk, and their beef is much esteemed by the butchers because it is of good quality and yielding small joints similar to the Scotch and Welsh animals, which sell at the highest quotations for beef. The heifer classes at the Dairy Show were not considered satisfactory, nor do we believe they are ever likely to be, for the reason that their milking powers are not fully developed, and we think that the Association may extend their prizes for cows and pairs of cows in some other direction, and especially in the encouragement of cross-breeding stock. Although the cross-bred animals exhibited at the late Show were not well defined by the appearance of the cows to enable farmers to say what the crosses were, yet, we think, on a future occasion with special encouragement and a statement of the breed of both sire and dam of each animal exhibited, it would be shown that cross-breeding dairy farmers have yet a valuable lesson to learn, which we shall endeavour to show in future observations.

We have turned our attention to cows only, but must not forget the bulls, because it is a moot question which has the greatest influence in cattle-breeding, the cow or the bull. It is a most important matter that the bulls should not only come of a milking family, but also that they show what is required in their make, shape, and outline; for if we select a bull for his correct breeding within the lines of pedigree, it is impossible to say that it will be the parent of the most valuable milking stock; we even go so far as to say that it is more likely to be the reverse. The same observations that we have made with regard to the best shape as a rule for the best milking cows, will to a great extent hold good in well-formed bulls, as required for begetting dairy stock. The early Shorthorns, at least when we first knew them, were frequently considered too light in the forequarter, and particularly behind the shoulder top, and at the cattle shows generally these had no chance of winning a prize, because this peculiar form was considered a defect. It is a defect we admit, if we are breeding cattle principally for the shambles, but not if breeding stock for dairy purposes; and we can only hope that judges, if they agree with us, will possess courage enough to award the prizes accordingly.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The Wheat seedtime is now drawing to a close. Only a portion of the Turnip land where the crop is being fed off by sheep remains to be sown, and since the commencement of the present month there has been no hindrance to the horse labour employed in working the land and drilling Wheat; in fact, the period is not only right for seeding upon all good and dry land in good condition, but the state of the land has been all that could be desired. Although heavy rains have prevailed in most parts of the kingdom during a great part of the month of October, and the low lands were much flooded, yet dry soils were benefited by it, because the subsoil was comparatively very dry, and any excess of moisture has therefore been quickly absorbed. The strong lands have been too wet throughout the month of October, but even these since the 1st of November have been sown with Wheat in capital condition, especially where the home farmer has shown patience by waiting for the opportunity, although it came rather later than usual. We must now refer to the policy of sowing a full lain of Wheat, for during several years past a diminished acreage has been sown. We could not, however, recommend the home farmer at present to sow a short lain of Wheat, for the general opinion prevails that we have perhaps for several years touched the lowest point for our Wheat produce as regards price per quarter. This depends upon many circumstances, and cannot be acted on with safety. Our idea is that Wheat under any circumstances upon all dry or good mixed soils should be considered the rent-paying crop, and is likely so to continue. If the weather should prove dry and favourable, as at the time we are writing, much of the land under autumn fallow, whereon the couch grass has been harrowed and brought to the surface, may be cleared of the couch and rubbish before the land is deeply ploughed to lie the winter. Some farmers do not hesitate to plough the couch in again, even after lifting it out of the land by costly labour; but this is altogether wrong, because we have had no weather this autumn to kill the white-rooted couch: indeed, summer weather will not always destroy its peculiar vitality. We therefore never advise its being ploughed down at any time. The sowing of green crops has been finished a long time, if not in proper season, and we find both Rye and winter Tares are doing well; but with regard to Trifolium the plants have been destroyed by the slugs in numerous instances. We remember, however, a similar season when the slugs destroyed our first sowing in September after sowing 20 lbs. per acre. We then in October sowed 25 lbs. per acre on the same land. This was also destroyed, but on the 13th of November we sowed 30 lbs. per acre, and although a hard frost occurred soon after the seedlings appeared it stopped the slugs without injuring the Trifolium, of which we had a valuable crop in the summer, although a little later than usual. We consider this crop of so much importance that we do not hesitate to sow late and use

large quantities of seed rather than be without the crop in early summer.

Hand Labour.—Mangolds and Potatoes should be finished heaping and storing without further delay. Some farmers leave spaces on the top of the heap to allow heat to escape, but this also allows the rain to enter. We prefer 2-inch drain tiles set on end upon the top of the heap at certain distances: this permits any results of fermentation to escape without admitting rain. The dairy cows now require our especial attention, for their well-doing and giving a good supply of milk depends upon the food they receive, and in case of a dairy for furnishing milk during the winter and spring months is kept, fresh purchases of cows that have newly calved must be made. It is better to foresee this matter, and insure the calving all the year round of the stock on the farm in order to insure a supply of milk during the whole year. The sheep feeding off roots upon the land have done well up to this time upon all dry land, but when roots are grown upon heavy flat land they should be either carted away for cattle, or otherwise pitted on the land to be fed by sheep on the land during March or April next, when the land will bear the tread of the animals without injury in ordinary seasons. The hay is very inferior this year, being damaged by rain as much or more than in any season we ever remember. It may be spiced at the time of cutting into chaff if the spice was not applied at the time of stacking, for when hay is taken up after much rain it still contains nutriment although it does not attract the stock. We know of no better or cheaper spice than that sold by Bowick & Co. of Bedford. As the pastures are short of grass, all young stock should receive Cabbages strewed on the pastures, also those dairy cows which go out to feed. The down ewes in lamb should now have grass as long as possible, old lea being best; they may, however, have some Cabbages upon dry pasture at night. No low-lying meadows should be fed off by sheep at this time of year. We find that there is a plan started for the treatment of pastures, that where sheep are found to suffer from coathe or rot—namely, to apply a moderate dressing of common or manure salt, or fishery salt to the pastures now, and another dressing again in March. This is said to kill the fluke egg or entozoa, but it should be done every season wet or dry; the fluke will then be destroyed in embryo, and the pasture will be benefited, especially if fishery salt be used. The horned Somerset ewes are now lambing fast, and this is a season especially favourable for them, for the Italian Rye grass in the Wheat stubbles has furnished abundance of food, and will continue to do so for another month if the season proves mild. The ewes and lambs, however, ought not to render the young Clovers too bare, nor yet lie thereon at night time, for it not only injures the Clover plant when we have night frost, but Clover layer proves bad for young lambs, the Wheat stubbles being warmest for night quarters, as we frequently find the lambs suffer from a kind of rheumatism and swollen joints. From this they never recover, but should be killed and replaced by others.

CRYSTAL PALACE POULTRY SHOW.

ONCE more the poultry fanciers' great "Derby" has come round, and the Crystal Palace is lined from end to end with Mr. Billett's pens. The public were admitted on Monday, and the Show remains open till five o'clock this evening. It is the twelfth of the revived series of annual shows; large to begin with, year by year it advanced till it attained its present immense proportions. It seems as if this were its utmost limit; and though the quality of the exhibits may improve, their numbers are stationary or vary little from year to year. The result is that each class comes as nearly as possible into the same position it has before held, and we can scarcely realise that we are looking at a set of birds, one-half of which have been hatched since we last saw the Palace Show. For one year the Pigeons were dispossessed from their central transept, but there they are again in all their beauty, and certainly there is no place like it for seeing them. But we must not generalise about the Palace; everyone knows it, and every fancier knows the charming view it gives of feathered stock. Those, however, who are not fortunate enough to get to it will want to know some particulars of the year's results, and how they and their friends have fared in the poultry wheel of fortune.

Dorkings of course come first. We have seen the Darks more numerous, but their average excellence is high. The first adult cock is a square dark-coloured bird in good condition; second a fair but not striking bird; third a nice short-legged bird and good in colour. The cup goes to the first hen, a famous old winner which has stood before in the same position; her day is somewhat past, still she is in good plumage again, though somewhat loose in crop. Second is a deep-bodied bird, short in leg and in good condition. Third is very large and fine, a good Dorking in shape. Fourth rather small. Cockerels are a fine class of sixty-seven. The cup bird is broad, deep, and massive, very dark with bronze on the wing; second has a nice comb and short legs, but white earlobes; we liked the third, a very large bird; fourth also large, but a very suspicious appearance about the back of his comb; fifth a pretty but very small bird.

Many others beyond the prize birds are worthy of their notices. 35 (Lord Winterton) is large; 45 (Beachey), good but white in cars; 48 (Pilkington), deep in body; 57 (Lingwood), gigantic, with five toes to match his size. Pullets numbered twenty-five. The cup went to a rich-coloured bird good all round; second large with very white feet and pretty comb, but a little light in colour; third we thought a mistake, she has very sooty feet and is not striking in any point; fourth a good square pullet, which we preferred; fifth a fair bird with big and ugly spurs; 73 (Mrs. Hind) about the largest bird in the class, with good white feet, a little rusty in colour or she must have won; 81 (Warren) has nice white feet; 84 (Cresswell) very fine but a little light in colour; 92 (Taylor) a large handsome pullet. In Silver-Greys—Whites—the Judge has gone in much for colour, and less than usual for size and form. The cup Silver-Grey cock is a really good and silvery bird; second good in colour and fair in other points; third small and poor in comb, but silvery also. The first hen is very fair, square, and in good condition; second a big bird with an ugly comb; third has been a fine hen, but her day is over. The cup cockerel is not large, but well shaped and good in every point, and well deserves his place; second is as silvery, but ticked in breast; third is sprightly, but poor and small. Several immense birds are highly commended only, doubtless because they fail in purity of hackle and back colouring. The first pullet is very large and pretty; second and third both good and well chosen. Cuckoos are looking up, and a great improvement on past years. The first pair are young, of a good dark colour and rose-combed; second pale in colour, and we do not like the cock's wry rose comb; third are single-combed, very well marked, as are generally single-combed Cuckoos, but the cock is too white in tail. The White Dorking judging is somewhat of a mystery; we long thought that the cup card had got on to the wrong pen, but are informed that this is not so. The cup cockerel is very white, very small and pretty chicken; second a noble old bird; third a fair cockerel. The first hen is very white, and that is all we can say; the second a much better bird. The first Darks in the £5 selling class are a magnificent pair.

Cochins.—Buff cocks a fair class of eleven. The winner clearly ahead in size but rather coarse in comb; his hocks nicely turned, and ample foot feather except on the middle toe. His colour rather too much in the tricolor type for our taste; however, he was well ahead of the rest of the class. Second a nice even-coloured one, but smaller and rather flat in back. Third heavily hocked and wings slipped, good in shape and carriage, but showing too much streak in saddle hackles. 200 (Hind), highly commended, a pretty lemon, small in size and heavily hocked, but to our mind better than third. Buff hens.—A good class of eighteen. First and winner of the cup for cock or hen a beautiful light shade of buff, round as a ball and well fluffed out. If she have a fault it is in carrying her tail rather too high. Second rather darker in colour and a trifle coarse in head, also slightly too high in tail. Third large in size, but with one defective eye, and rather straight in back. All three winners were hocked. 220 (Brown), highly commended, good in shape and carriage of tail. 224 (Bloodworth) very highly commended, a grand cushion but not quite clear in colour. Buff cockerels.—A good class of twenty-eight. The winner, which also takes the Buff chicken cup, is an evenly-coloured lemon with a rather mis-shapen comb and rather heavy hocks; he wants solidity a little, but is otherwise of good shape. Second an even-coloured light Buff with nicely rounded hocks, pressing very closely on the winner. Third a lemon again, but not quite even in colour and wings rather loose, comb ugly at back. Fourth a fair Buff. Most of the noticed birds were good. 245 (Proctor) very highly commended, struck us as being a particularly good one but for the large size and defective carriage of his wings. Buff pullets numbered thirty-nine, and was by far the best class of Buffs. First was a beauty in all points except comb, which was rather too large and weak, and a slightly twisted hackle. We should, we think, have gone here for the cup. Second hocked, and not quite so even in colour, which was a dark shade of buff. Third a light buff, even in colour but hocked again, and if anything rather too close in plumage and narrow in saddle. Fourth rather darker in colour, good in shape and feather. 268 (Davidson) very highly commended, a very shapely pullet but a little broken in colour. 279 (Causer) good in shape and colour but small, worth a card. 291 (Long) very highly commended, very shapely also. Partridge cocks numbered twelve, and no less than ten of these were deservedly noticed. As a class they were much superior to the old Buffs. First and cup for Partridges very brilliant in colour and in the pink of condition, but failing in saddle. Second more massive, and will surpass the winner later on unless the white in his tail develops too much. Third very massive, but only half out of his moult. Partridge hens.—Another very good class, numbering fifteen. Almost every one of the ten noticed birds was really first-rate. The Judge seemed to us, however, to go in rather too much for the old type to the exclusion of the more clearly pencilled modern style. 308 (R. J. Wood) highly commended, we thought the best bird in the class, as she had a wonderful breast, and was of fine size and shape; she had, however, a severe cold in one eye, which perhaps threw her out. Partridge cockerels (twenty-one) were not as a class up to the quality of the old birds; many were undersized and far too coarse in comb. The winner was good in shape and colour, but only moderate in size and coarse in comb. Second and third moderate in quality. 333 (Morris), very highly commended, struck us as the best Cochin in the class, but his very dusty neck hackle doubtless threw

him out. Partridge pullets (twenty-nine) were as a class of good average quality, but contained nothing very startling. Here again we could not quite agree with the Judge. Second would have been our choice for winner; her only faults in our eyes were a few white feathers in feet and hocks. First was not so distinct in markings and inferior in shape to second. Third might also with advantage have made way for 362 (R. J. Wood) v.h.c. good in size, shape, and marking. White cocks numbered only five (with Mr. Darby's pen empty), and were not good at that. First good in colour and shape, but rather too much tail; second and third either dirty or yellow in hackle. White hens (nine). First and cup for Whites a really grand hen, deservedly placed at the top; second also a good one, but not equal to the winner—indeed, we should have placed the third above her. 380 (Darby) was second here, and first at Birmingham last year as a pullet. She is not through moult and has to grow, but will make her mark yet as a hen. White cockerels were only eight in number. Mr. Darby's Dairy Show bird here came to the front again. He is wonderfully free from yellow, and is indeed a good bird all round. Second good in colour but small; third larger but rather yellow. White pullets (ten) were again headed by the Dairy winner, a wonderfully perfect pullet. She walked away from second and third, though neither of these were inferior. Black or Langshan cocks were five in number, four being Cochins and one a Langshan. We wonder that any Langshan breeder entered in such classes. All the prizes went to Cochins, Mr. Cowell being highly commended in each class with Langshans. First very large and good in all points except comb, which was not quite straight. Second, also, only failed in comb, which was too large. Third smaller, but very glossy and fine in head. Hens were eleven in number. First was a large finely shaped hen with a good gloss. Second not nearly so large, but attractive in style. Third was quite out of sorts, and should have given way to Mr. Cowell's Langshan hen. Cockerels (eleven). The winner took his place and the cup by size and condition; his shape was hardly correct, as he had a round back and carried himself too erect for a Cochin. Second and third were of a more correct Cochin type, but much smaller. 423 (Lady Gwydyr) highly commended, the pick of the class but for his coarse comb and wattles. Pullets (fourteen). Not much to choose between the three winners, first being best in saddle but rather short of foot feather for her hocks. Second a little coarse in comb and dull in colour. Third in brilliant condition and good in all points except cushion, which is hardly high enough. The five-guinea Cochin selling class contained some good birds at the money, but nothing startling.

Brahmas.—The Dark Brahmas this year were judged by Mr. Raines, the first time, we think, that he has officiated at the Palace; and though there were of course the usual percentage of grumblers, we think, as a whole, the judging was satisfactory, the best birds in the classes generally taking the prizes, though the order in which they were placed might in some cases have been altered with advantage. In old cocks size seems to have been considered a good deal, and the cup went to a very large bird, but his want of shape made him look ungainly. Second was another large bird, and we rather preferred the same exhibitor's highly commended (482), which was better in most points except size. Third was the best-shaped bird of the four, and certainly deserved his position. Fourth another large awkward-looking bird. The class as a whole was good, though inferior to what we have seen in past years; most had bad coarse heads. 467 (Comyns), v.h.c. was one of the few that had good combs. 476 might have been noticed, though not so good as Mr. Lingwood generally shows. The first old Dark Brahma hen was a magnificent bird; with the exception of a slightly brownish cast on the wings, she is nearly perfect, and the condition she was shown in was a great credit to her owner; she should certainly have had the cup. Second was a grand hen, but rather too Cochiny in shape. Third rather too high on leg, and fails rather in marking towards the tail. Fourth a well-feathered bird, but otherwise there was not much to choose between her and her neighbour. 487 (Taylor) c. Cockerels were a grand class of nearly fifty entries. Mr. Lingwood is to be congratulated on a success as unparalleled as it is deserved, for four better birds were never sent out from one yard; indeed, we might almost say from any yard. They were all grand in shape and width, and good in comb—three points in which we have noticed a general falling-off this season, a slight difference in colour and size making the difference between them. Fifth a pretty bird, lacking size. Sixth wanting in leg feathers, and altogether hardly so good as the same exhibitor's 533, commended. Seventh a large bird, also rather short of feather. 540, very highly commended (Kendrick), and 559, un-noticed (Gwydyr), both good birds above the average. Dark Brahma pullets numbered about forty. First a well-known bird, looking rather overdone and out of condition, but deserving her position. Second a good pullet, nice shape and leg feathers, but rather hazy in marking on both wings and cushion. Third large but rather stilty, and disfigured by inside leg feathers. Fourth a fine large pullet, but also rather too high on the leg. Fifth a good Dark with heavy marking. Sixth not equal to what Mr. Percival generally shows, as she was rather mossy in her marking, though a pretty pullet otherwise. The class was altogether a good one, and we should think most difficult to judge, as, though there was nothing of a very high character except the winners, there were a large number of birds above the average quality of show specimens. Old Light Brahma cocks were a small but good class. The judging was hardly satisfactory, many

complaints being made, and we think justly. The cup and second were very large birds, very narrow with enormous hocks; the second had also a dark smutty hackle; third was a good all-round bird and deserved his position; the fourth we preferred to any, and should have placed him first with 630 (Ive), unnoticed, second, and put 629 highly commended (While) fourth. Old hens were good, and most of them well through the moult. The cup went to a beautifully coloured bird of Mr. Lingwood; she only wants a little more leg feather to make her almost perfect. Second went to a fine large hen rather too Cochiny for our taste; third and fourth were both rather sandy in colour, and we preferred Mr. Mitchell's, 646, highly commended, to either. The cup cockerel we did not much admire, as he was yellow and rather hollow-chested. The second was rather better, but we would rather have had the sixth-prize bird than either; he was grand in colour, shape, and leg feather, but unfortunately had slipped his wing, had it been all right we think he would undoubtedly have won the cup. Third we thought should have won, being the best all-round, though several had better individual points. Fourth showed rather white in tail, but otherwise was a good bird, and might well have been higher. Fifth also rather too white a tail, and failed a little in depth of chest. 675 (Wood), highly commended, was a good bird, and would have stood a better chance if he had been on the lower row; in fact, some of the birds being on one level and some on another made a material difference in the chances of many. Pullets were the best class we have seen for some time. The cup went to a splendid bird, almost her only fault was rather a lack of foot feather. Second and third were both rather creamy, but otherwise were both good pullets, though we rather preferred Mr. Lingwood's fifth-prize bird, which was a beautifully clear colour, and very good in general Brahma characteristics. Fourth was a grand pullet, and had she been properly washed would have very likely taken a higher position. Sixth was a fine large bird, but rather too creamy in colour—a very prevailing fault. Amongst the unnoticed birds we thought Mr. G. H. Wood (706) was the best.

(To be continued, with the prize list next week.)

VARIETIES.

BROXBURN ORNITHOLOGICAL SOCIETY.—The first annual Exhibition and Competition of Poultry, Pigeons, and Canaries (open to the United Kingdom), will be held in the Town Hall, Broxburn, on Saturday the 25th December, 1880. The assistance of fanciers is requested to make the Show a success, and enable the Committee to increase their prize list on future occasions.

— **IRISH BUTTER.**—The butters of Ireland, as seen at the leading shows, will not suffer by comparison, all things considered, with those of England, or of the countries of northern Europe. That there is a larger proportion of inferior butter made in Ireland than in any other country which reckons to be a dairying country at all is probably true, but it is equally true that some of the best butter in the world is made there. It is merely a question of care and cleanliness. At any rate a collection of Irish butters shows more body, substance, and general quality than we have found to be the case in other countries. At the same time we must admit that they are less skilfully made and less neatly finished off and presented than, for instance, the butters of Denmark or of Finland. Possessing an inherent superior quality they lose the advantage of not being so skilfully made. With one of the finest climates on earth for dairying purposes; with a soil and herbage which are not easily equalled; with a breed of cows excellent in many respects, and still improving; and with milk pre-eminently suited to butter-making—more so, perhaps, than the milk of any other country in the world—the Irish people are provided with the first requisites for becoming the leading butter-producing nation in Europe. But to attain this position requires, in our opinion, the untiring industry, the scrupulous cleanliness, the intelligent thought, and the pride in work which are conspicuous among the Dutch and the Danes.—(From "*Dairy Farming*," by Professor Sheldon, for November.)

— **THE AMERICAN DAIRY INDUSTRY.**—At the late convention of the American Butter and Cheese Association the President of the North-western Dairyman's Association, Hon. G. P. Lord of Elgin, Ill., read a paper, in which he estimated the number of milch cows in the United States at over 13,000,000, requiring the annual product of 52,000,000 acres of land for feed, giving employment to 650,000 men, and requiring the labour of 866,600 horses. Estimating the cows at 30 dollars each, the horses 80 dollars, and the land at 30 dollars per acre, together with 200,000,000 dollars for agricultural and dairy implements, and the total amount invested in the industry is

2,219,328,000 dollars. This is considerably more than the amount invested in banking and the commercial and manufacturing interests of the country, which is 1,800,964,586 dols. Accepting 12 cents per gallon as a basis for computing the value of the milk product, and 446 gallons as the average per annum (this being the average yield in sixteen States in 1860), the 13,000,000 cows produce annually 5,793,000,000 gallons of milk, worth 695,760,000 dollars. Analysis shows that $3\frac{1}{2}$ lbs. of milk contain the same kind and amount of nutrition as 1 lb. of boneless beef. The total weight of product is 50,732,600,000 lbs., equal to 14,495,000,000 lbs. of boneless beef. About 50 per cent. of a fat steer is boneless meat, so that it will require 20,650,000 steers of 1400 lbs. weight to produce the same amount of nutrition as the annual milk product. Such fat steers would sell at 4.50 dollars per cwt., or 63 dollars each—a total of 1,300,950,000 dollars; deducting from this amount hide and tallow, 260,190,000 dollars, leaves the meat value 1,040,760,000 dollars. This gives the food value of the milk product in the United States annually. Willard, in his "*Practical Dairy Husbandry*," says that "milk at 24 cents per gallon is equivalent in value to boneless beef at 9 cents per pound." It is false economy, therefore, that substitutes meat for milk as an article of food.

— **THE WHEAT SUPPLY AND PRICES.**—A daily contemporary concludes an exhaustive article on this subject as follows:—"We have received up to November 6th from all foreign and colonial sources of supply 15,937,026 cwt. of Wheat and flour against 18,082,870 cwt. in the same period last year, or a falling-off of $11\frac{1}{2}$ per cent. We are importing at the rate of about one-ninth less than the $16\frac{1}{2}$ million quarters imported in the twelve months ended in August, and if $14\frac{1}{2}$ or 15 million quarters will be sufficient to supplement our weak home crop of probably 9,000,000 quarters until next harvest, imports coming in at present speed will be all we require. The backwardness which has ruled in the movement of American grain may continue, and the failure of great shipments from Russia and Germany may not be made up from other sources beyond the sea; but we really want no more for the year than is pointed to by the arrivals during the last two and a half months, it being admitted on all hands that our home crop of Wheat—deficient as it is compared with a fair average—greatly surpasses the starvation product of 1879, when $16\frac{1}{2}$ million quarters of imports were found ample for our consumption. Agriculturists may be gratified with the brisker markets they are hoping for, but there seems little probability of the rise being anything more than a moderate advance, and that, perhaps, not long continued."

— **THE MILK SUPPLY FOR LONDON.**—The Report of the Local Government Board for 1879-80 states that "Londoners are paying between £70,000 and £80,000 a year for water sold under the name of milk," and the statement is supported by figures which leave the impression of its truth. No return of the milk supply has ever been made, and the actual quantity consumed is estimated from data which are not very clear or satisfactory. It is found that the railways bring into London nearly 20,000,000 gallons a year. The Board reckons that some 3,000,000 gallons are probably produced within the metropolitan area; and the 23,000,000 gallons thus supposed to constitute the whole supply allow to each person one pint of milk a week. This estimate of individual consumption seems to us to be far too low, unless the working classes in London are very sparing in their use of this article of food. It represents, however, at 5d. a quart an outlay of about £2,000,000 sterling.

QUEEN ENCASEMENT, OR REGICIDAL KNOTS.

THIS question has lately been discussed in a thoughtful letter by Mr. Cheshire. At one time I was inclined to believe that the clusters of bees surrounding queens, so often seen in uniting swarms, were formed to protect them amongst strangers or from those bent on their destruction. In every case of this kind that has come under my notice during the last ten years, the knots or clusters were formed with murderous intent, and now I am convinced that all the small hard clusters of bees encasing queens are regicidal in their aims and never protective of life. Last summer I noticed two interesting cases. One was formed by the bees of

a first swarm on being hived. The queen, healthy and only twelve months old, left the stock hive with the swarm, but being without a wing she could not fly or follow the swarm. The swarm was hived and the queen given to it. In about two hours after I saw that something was wrong, and on lifting the swarm hive I saw a regicidal knot on the side of the hive halfway between swarm and board. This knot was rolled on to the board and the queen liberated. A second time she was encased and liberated, and next morning she was found dead under the flight board. Why did the bees kill her? I could not tell. Believing that the swarm was queenless, I thought the bees would return to the old hive, but they remained where they were and commenced to work and build combs as if nothing had happened. I gave the swarm a piece of comb containing eggs, expecting that royal cells would be formed and tenanted, but none were built. I took an old queen from a weak stock and gave it to the swarm. She, too, was killed and cast out. Meanwhile the swarm prospered and had cakes of brood scaled in less than a fortnight from the time of swarming. That they had a queen or obtained one in the act of swarming there can be no doubt, but where she came from was a mystery. There was no other hive in the garden ready for swarming. Had I not been on the spot and witnessed the whole affair I should have concluded that two swarms came off at the same time, but after much consideration I found no evidence to support such conjectures. The swarm is now a strong stock.

Another instance of queen encasement is more easily understood. In August last a gentleman in this neighbourhood begged me to drive the bees from one of his honey hives and take them for the trouble. After almost all the bees were driven into an empty hive an attempt was made to kill and clean out the stragglers by sulphur. A small bit of paper sprinkled with sulphur was ignited and the hive placed over it. On lifting the hive it was found that the sulphured paper had been extinguished before the bees were destroyed. On shaking them out it was seen that though not killed they were much injured and unable to fly, and that the queen, a beautiful half-bred Ligurian, was amongst them. She was picked up and given to the driven bees. They did not know her and would not have her. She was speedily encased by a cluster of bees bent on her destruction. They were not disturbed for an hour or more till the smell of sulphur had nearly passed from her body. She was then liberated and seen to run into the body of the swarm, and is now the queen of a healthy stock.

The conduct of the bees in this case leads me to notice a thoughtful remark in Mr. Cheshire's letter. He says, "Since bees have the power of recognising every member of their own big household and distinguishing every stranger, it is quite likely that little matters which we cannot detect are to them as conspicuous and distinct as facial expression is to us." This is correctly stated. Bees have such powers, and in such cases that of smell seems to be the most powerful and useful. The sulphured queen appears to have been detected and rejected by smell, and that the sense of sight was not called into play at all; indeed, for indoor work the sense of sight is unnecessary. They possess compensatory powers. I think it will be very difficult to prove that bees know members of their own family by sight. If they do they have short memories, and soon forget them. If a swarm, natural or artificial, be taken from a stock hive the bees of the swarm would be recognised and received by the mother hive if they went back within one or two days, but if kept away for a week they would probably be killed at the door of the hive on returning. In uniting swarms the danger of fighting and destruction is at the time of uniting. If the two swarms remain for half an hour without fighting they become one family to all intents and purposes. Smell seems to be the only bond of union.—A. PETTIGREW.

HEATHER HONEY.

THE year 1880 will long be remembered by our highland bee-keepers as perhaps the most productive honey season ever known hitherto. I have just returned from a three-weeks tour, during which I have visited the leading bee-keepers along the lines of the Highland, Great North, and Deeside Railways, and the general testimony has been that never before did bees do so well on the Heather. Nor has success been confined to those who practise the modern methods of culture, the number of weighty brimstoned skeps being marvellous to see. While our lowland bee-keepers are lamenting over a poor yield, those in the highland districts can well afford to take heart, for not only has the yield been exceptionally large, but the sale of the honey has been such as to make it almost impossible for me to obtain a few supers of which I was in need. One bee-keeper of the modern school had not only sold all his own to the amount of about £40, but had to purchase

about as much again to fill orders, and this at a uniform price of 2s. 6d. per lb. The one condition for securing so satisfactory a price was that the genuine Heather honey should be stored in neat packages, sections of 1 or 1½ lb. being preferred. Everywhere I have found that a decided preference exists for Heather honey, and that double the price of Clover honey is readily obtained for it. The demand is also on the increase, partly because of its delicious quality, and partly because the taste for lowland honey has to a great extent become cloyed. The latter is often so polluted by so-called honeydew, and so nearly resembles the insipid American honey, that persons once accustomed to both almost invariably settle down on the Heather as the honey *par excellence*. Such being as I believe the case, a grand opportunity is offered of turning to account the thousands of square miles of blooming Heather with which our country abounds. How to do so to the fullest extent is the problem I would venture to lay before my fellow bee-keepers. The bee books and journals give us little if any assistance. They do acknowledge the desirability of "removing bees to the moors," but there they halt. They give no idea of the special treatment that stocks must receive before they can take full advantage of what in most seasons is really a harvest "out of season." As a rule they give directions only for obtaining the largest results from earlier harvests, and as a consequence those who follow their advice find themselves on the advent of the Heather season with stocks diminished in population, brood-raising almost suspended, and the brood combs glutted with honey. It will thus be evident that in such a common case only very moderate results can be obtained; and when it is noticed that the population of a hive working on Heather dwindles in an exceptionally rapid way, and that the instincts of the bee lead it so late in the season to store all it can in the brood nest to the exclusion of the queen from laying room, the need for some explicit and special rules for working the Heather harvest will be evident. In a future issue I hope to contribute my share to this end, but meanwhile I shall continue to notice such facts as I have observed, and from which our special rules of treatment may be deduced.

I have found that in purely highland districts late-swarming hives yield returns quite as good as those that swarm earlier. Their larger proportion of young bees is probably the reason. The region of Aboyne and Braemar, where swarms are as late as the 1st of August, yields enormous returns. In these districts the ordinary dome-shaped skep is the rule, and extension is liberally given as required by the addition of wooden ekes. These afford the necessary breeding space from time to time, and serve thus to maintain the population to the close of the season.

I have been much interested in finding that bees do work to a large extent on the two species of Heather (*Erica tetralix* and *E. cinerea*) that bloom in July, a month before the common Heather. My friend Mr. Paterson of Struan kindly invited me to partake of the contents of a 1-lb. section of the whitest comb I ever saw, and asked whether I could recognise the source from which it had been gathered. In spite of my conceit as a judge of honey I had to confess myself at fault. The delicious flavour was quite new to me in white honey. He then informed me it was gathered from the Bell Heather—the two varieties mentioned above—and that his bees had forsaken the Clover to work on it in July. A visit to the hill behind his house revealed such a profusion of these Heaths as I had never seen before, and I could not wonder again that his honey was in such demand. This discovery at once explained what I had often observed, that some districts yield Heather honey so much darker in colour than others, the darker grades having a decided bitterness and tendency to catch the throat quite different from this lighter-coloured quality.

There is evidently a difference between the honey yield of Heather on lowland moors and that on the hills. My own bees gathered but sparingly from the moor beside them, and that only until the later bloom on the hills appeared. They then almost entirely took the opposite direction for the hill. The nearest Heather in this direction is between three and four miles distant, and gamekeepers assure me that they saw my Ligurians in abundance at five miles off. Others have informed me of finding Heather honey in their hives this season for the first time, and in some cases the distance must have been even greater than mine by a mile or two. As it turned out I had three-fourths of my surplus pure Heather. The further we advance inland the more abundant seems the flow of nectar, and I could not help lamenting over the scores of miles of purple Heather where I was informed that no bees were kept at all. I have had the honour of introducing the matter in the far north to the notice of the flourishing Farmers' Society at Inverness. The proposals I made for their taking the lead in developing the industry of bee-keeping, the public lecture that followed, and the open air manipulation

of bees on the following day, seem to have aroused quite a large amount of interest, and promise to bear fruit in the near future.—**WILLIAM RAITT, Blairgowrie.**

PRODUCTS OF BAR-FRAME HIVES.

I HAVE read with much pleasure your correspondent, Mr. J. Thomson's, account of his honey harvest from a bar-frame hive, inasmuch as it gives interested, though yet unprejudiced, persons an opportunity of judging of the relative merits of the straw-skep *versus* the bar-frame system of management in a similar district as to honey gathering, and evidently also under equally proficient handling. It is the first answer to Mr. Pettigrew's challenge to "the bar-frame hive gentlemen" to "send their reports," and to my thinking is decidedly a point in favour of the latter. Mr. Thomson deducts weight of hives and floorboards, and his calculation is decidedly within the mark, as I have Pettigrew hives weighing 8 lbs., and not of the largest dimensions, yet he has deducted nothing for weight of bees, combs, pollen, &c., which he should no doubt also do to be correct. We all know pretty well what the Pettigrew hive is; but I daresay many of your readers, like myself, would be much obliged to Mr. Thomson if he would inform us the style of hive he manipulates. Is it the Stewarton or other frame hive? and if so, what are the dimensions of the frame he uses, and how many frames per hive? If other gentlemen giving us accounts of their results would kindly give us a few more details of this description, I think it would tend to the advancement of what we all have at heart—viz., successful apiculture. In your issue of the 4th inst. I note "B. & W." is of opinion that frames of 14 by 9 would be a good size, those he has in present use (he does not give their dimensions) being too small. Now I have frames of 13 by 9, and I believe they would be better were they from 10 to 12 inches deep, as I find this season the brood confined to too small a space near the bottom in consequence of there being so much room occupied by honey and pollen in the top part; and as the queen seems to prefer to centralise the brood nest as much as possible, I think we may adopt frames nearer the American pattern of 12 by 12 with advantage. Possibly some of your esteemed correspondents will kindly give us their ideas on this, as I think, rather important matter.—**M. H. MATTHEWS.**

ARTIFICIAL COMB FOUNDATIONS IN STRAW HIVES.

FREQUENTLY I have been asked how these foundations could be fixed and used in straw hives. My reply has been, that the bar-frame or moveable comb hive affords greater facilities for the use of comb foundations than straw hives, but that if the foundations be proved to be of substantial advantage in apiculture, a successful way of using them in straw hives will be invented and adopted. Some time ago it struck me that by using wooden crowns in straw hives, and cutting out narrow slits from 8 to 10 inches long, and at proper distances apart in them, the foundations could be easily dropped down through the slits, and securely fastened by drops of melted wax or wedges. This seems easy and simple enough. The cross-sticks, so necessary in large straw hives, should be fixed before the foundations are introduced, and fixed just low enough to admit the foundations without touching. The bees on commencing work would fasten them to the sticks, which would give strength and stability to the whole. Hives with large crown holes and wooden lids could be treated in the same way, the slits of course to be made through the lids. Wooden supers, too, could be filled or half filled with foundations dropped in through narrow slits in their crowns and fastened by drops of melted wax on the outside. Be it known that all this is suggestion, but suggestion so self-evident of a practical character that the merest novice in bee-keeping will lose sight and fear of the difficulties of introducing comb foundations in his hives and supers. As I am still of opinion that foundations will yet be found to be very useful and profitable in various departments of apiculture, I shall be pleased if all the schools give them a fair trial next season and record the results.—**A. P.**

OUR LETTER BOX.

Ducks (J. S. W.).—Your Ducks are evidently cross-bred, probably between Rouen and Black East Indian. This cross produces black birds with white on their breast; had the cross been with Pekin they would have been half white. The birds you have, though of no use as exhibition Ducks, should be excellent for the table. The Black East Indian is in our opinion the best domestic Duck for eating, though small.

Chickens not Thriving (P. S., Keighley).—Your birds appear to be affected with catarrh. Keep them in a warm dry place, and wash their nostril

with vinegar and water. A teaspoonful or two of easter oil, according to the age of the birds, may also be of benefit. They require, too, more generous food, such as oatmeal and bread mixed into the form of a dry paste with strong ale. For fattening feed them liberally with oatmeal or barley meal mixed with milk; a little of Spratt's food and kitchen scraps will also be of service, with whole sound grain at night.

Pullets Laying (D. A. T.).—Well-developed pullets now six months old ought to lay in January. We recommend stimulating food to hasten their laying, but should give it by adding to their ordinary meal a little pot liquor in which meat has been cooked, table scraps, stale bread with beer, all of which are natural and healthy helps.

Parrots Falling from their Perches (B. C. W.).—Your bird is suffering from vertigo and nervous weakness, which is the cause of its falling from the perch. Parrots are very liable to the said accident, which is encouraged and brought about through being kept in a somewhat confined and warm temperature. When the fits occur give it a few drops of brandy and water. Give it a tepid bath two or three times a week. After the bathing and during the time the feathers are wet, spurt from your mouth a teaspoonful of brandy over the Parrot, after which throw a cloth over the cage and place it within 2 or 3 feet of the fire. When partly dry remove the cloth and hang the bird up. Accompanied with sound food this will tend to strengthen the bird if it is not past recovery. If you give your Parrot much meat, partly discontinue it, for it produces laxity and weakness. Give bread soaked in milk, and a little ripe fruit occasionally.

Bees not Taking Syrup (J. J. Cresswell).—Your hive is doubtless a weak one, and the lateness of the season and coldness of the weather are against your efforts to make it stronger. Even strong hives are slow to take syrup in cold weather. Make your syrup sweet enough, and while it is warm sprinkle half a pint of it over the combs and bees of your hive, close the door to keep the bees in, then remove the hive to the side of the kitchen fire. As soon as the combs are dry give the bees another feed, and then another, till they have enough. The door of the hive of course should be closed while it is in the kitchen, and the examinations and sprinklings should be done in the garden where the bees stand.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1880. Nov.		Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wct.			Max.	Min.	In sun.	On grass.		
Snn. 7		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Mon. 8		30.255	45.8	43.9	W.	41.5	52.8	43.2	73.2	39.2		
Tues. 9		30.201	43.9	42.4	N.	43.2	52.7	43.1	88.8	39.7		
Wed. 10		30.366	32.2	30.6	N.W.	42.0	41.6	28.2	56.3	25.4		
Thurs. 11		30.060	43.6	40.9	N.	41.4	51.6	31.6	81.9	29.6		
Friday 12		30.081	49.5	48.9	N.E.	41.7	52.4	38.8	53.9	31.5		
Satur. 13		29.931	51.4	50.3	S.W.	43.7	56.0	47.7	69.6	42.4		
		29.768	55.3	52.9	W.	45.3	55.0	49.9	60.3	45.3		
Means.		30.099	46.0	44.3		42.7	52.2	40.4	69.1	36.2		
										0.275		

REMARKS.

7th.—Overcast except for short time at noon, slight shower 9.30 P.M.
8th.—Very fine with much bright sunshine.
9th.—Fine bright morning; overcast afternoon; cold day. [and evening]
10th.—Fine with bright sunshine in forenoon; slight fog latter part of afternoon
11th.—Rain in morning; damp overcast day.
12th.—Rain first part of morning, clearing off at noon, fine and mild rest of the day; lunar halo 9.15 P.M.
13th.—Fair but damp, very windy.
In spite of one cold day (the 9th) the weekly means of temperature are far above those of either of the three preceding weeks, and slightly above the average.—**G. J. SYMONS.**

COVENT GARDEN MARKET.—NOVEMBER 17.

TRADE remains practically the same as before.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	2	6	4	6	Melons	each	2	0	4	0
Apricots.....	box	0	0	0	0	Nectarines....	dozen	0	0	0	0
Cherries.....	½ lb.	0	0	0	0	Oranges	£ 100	0	0	0	0
Chestnuts.....	bushel	12	0	16	0	Peaches	dozen	12	0	18	0
Figs.....	dozen	0	6	1	0	Pears, kitchen ..	dozen	0	0	0	0
Filberts.....	½ lb.	1	6	1	8	dessert	dozen	2	0	4	0
Cobs.....	½ lb.	1	6	1	8	Pine Apples ...	£ lb	3	0	4	0
Gooseberries ...	½ sieve	0	0	0	0	Plums	½ sieve	2	6	4	6
Grapes	½ lb	2	0	4	0	Walnuts	bushel	0	0	0	0
Lemons	£ 100	12	0	18	0	ditto	£ 100	0	0	0	0

VEGETABLES.

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes.....	dozen	2	0	4	0	Mushrooms	dozen	1	0	1	6
Asparagus.....	bundle	0	0	0	0	Mustard & Cress ..	punnet	0	2	0	3
Beans, Kidney....	½ lb.	0	0	0	6	Onions	bushel	3	6	5	9
Beet, Red.....	dozen	1	0	2	0	pickling	quart	0	0	0	0
Broccoli	bundle	0	9	1	6	Parsley..... doz.	bunches	6	0	0	0
Brussels Sprouts..	½ sieve	1	9	2	3	Parsnips	dozen	1	0	2	0
Cabbage	dozen	0	6	1	0	Peas	quart	0	0	0	0
Carrots.....	bunch	0	4	0	6	Potatoes	bushel	3	9	4	0
Capicums.....	£ 100	1	6	2	0	Kidney	bushel	4	0	4	6
Cauliflowers.....	dozen	0	0	3	6	Radishes.... doz.	bunches	1	6	2	0
Celery	bundle	1	6	2	0	Rhubarb.....	bundle	0	4	0	0
Coleworts..... doz.	bunches	2	0	4	0	Salsafy.....	bundle	1	0	0	0
Cucumbers.....	each	0	4	0	6	Scorzoneria	bundle	1	6	0	0
Endive.....	dozen	1	0	2	0	Seakale	basket	0	0	0	0
Fennel	bunch	0	3	0	0	Shallots	½ lb.	0	3	0	0
Garlic	½ lb.	0	6	0	0	Spinach	bushel	3	0	0	0
Herbs	bunch	0	2	0	0	Turnips	bunch	0	4	0	0
Leeks.....	bunch	0	3	0	4	Vegetable Mar. ows	each	0	2	0	0



25th	TH	
26th	F	
27th	S	Birmingham Cattle Show.
28th	SUN	1ST SUNDAY IN ADVENT.
29th	M	
30th	TU	
1st	W	Sale of Bulbs at Mr. Stevens's Rooms, Covent Garden.

THE VALUE AND IMPORTANCE OF SHELTER. A HINT FOR SHRUB PLANTERS.

TWO winters of extraordinary severity, with a cold and wet summer intervening, have proved stern monitors, bringing widespread injury and death to the denizens of many a fair garden; thoroughly testing the reputed hardiness of many rare exotics of recent introduction; killing outright many an old-established favourite; and destroying in several instances the one pet plant of some small garden in which it had flourished since that other time of abnormal cold—that fearful winter during the Crimean war. Amongst the lessons of adversity taught afresh in this time of trial, the necessity for greater attention to shelter, not only for gardens but in them, is of the greatest importance. Gardens in low-lying damp situations suffered most; and in such gardens shelter would probably prove of comparatively little use in very severe winters. No county has more favourable situations for gardens than Sussex, few so many. Hills and valleys abound throughout the length and breadth of it, and yet the occupants of many gardens less than 200 feet above sea level suffered severely by last winter's frost.

The garden here is on a southern slope of a range of hills termed the Forest Ridge in Mid-Sussex, the lower part of the garden being about 400 feet and the higher part of it about 500 feet above sea level. There is much shelter from trees upon its north and east sides, but I have found to my cost that trees alone do not often afford complete shelter from high winds. They certainly do serve materially to break its force; but unless there is a dense grove of them on rising ground that forms a semicircle behind the garden from east by north to west, cold blasts are very apt to rush in through openings and do much damage in winter and spring. The north-east corner appears to me to require especial attention, for I have much more reason to dread a visitation of cold wind from that quarter than from the north, for winds from the cardinal points are never so mischievous as cross winds, especially from the north-east and south-west. The first comes with its biting breath so frequently in spring, when the buds of blossom and foliage are bursting into beauty; and the other frequently at other seasons of the year, often blowing down trees and battering tender plants so much as to do serious injury. Not unfrequently the foliage of deciduous trees is so much bruised and lacerated by it in early summer as to retain traces of its ravages till the trees shed the foliage in autumn. Reverting

to the north-east wind, I have often told of its baneful effect upon the foliage of Peach and Nectarine trees in spring, and will now give an example of what it does in winter. Two fine specimens of *Arbutus Unedo*, both about 8 feet high and as much in diameter, stand near each other. One, well sheltered by a dense clump of timber trees with an undergrowth of Holly, is in perfect health and is now in full bloom; while the other, not 20 feet off, but just far enough outside the edge of the sheltering clump to feel the full force of the cold winds, is nearly killed. The *Arbutus* answers so admirably in our poor thin soil as to be worthy of all that can be done to shelter it. I also observe that a snug sunny nook contributes materially to its fruitfulness; and at this dull season of the year few objects in the garden are so attractive as a healthy specimen of it having plenty of the large scarlet berries mingled with the wax-like flowers.

I am sorry to have to record a failure with *Benthamia fragifera*, a worthy rival of the *Arbutus*, and which I have reason to think would answer equally well under precisely similar advantages of shelter and aspect. I had only one plant, and that was evidently too much exposed, for it suffered so much from the severe frost of 1878-9 that it died lingeringly in the following summer. *Fremontia californica* also perished in a very similar manner, but the plant was a weak one and much exposed. Both are worthy of all care—the *Fremontia* for its large golden flowers in spring, and the *Benthamia* for its scarlet fruit at this season of the year, and its handsome pyramidal form and free strong growth. Against a south wall *Abelia uniflora*, *Akebia quinata*, and *Berberidopsis corallina* have now been growing and flowering freely for eight years, all of them being so rampant as to require frequent pruning. On the same wall a *Ceanothus divaricatus* is equally flourishing, and yet a fine plant of it upon a west aspect was quite killed last winter, which shows the importance of not hastily condemning any plant or tree till it has been tried in various situations, and we have done all we could for it in the way of shelter.

For small gardens and for most shrubs raised artificial banks afford prompt and efficient shelter. If the soil is tolerably fertile 6 feet high will suffice, the bank soon being clothed with a dense growth, which ought always to consist of evergreens, such as *Rhododendron ponticum*, common Holly, Japanese Privet (*Ligustrum japonicum*), or *Mahonia aquifolia*. I have tried double Gorse and Broom, but do not recommend either for permanent growth, the first being liable to be crippled and spoilt by snow, and the Broom often becoming sickly or dying outright in a few years.

Undrained or badly drained soil often proves fatal to shrubs in winter. Attention to this is undoubtedly of equal importance to shelter. A deep fertile soil with plenty of stones in it and thorough subdrainage contributes materially to the health and longevity of trees and shrubs. Soil through which surface water passes quickly is always warmer than that which is badly drained either naturally or artificially. Frequent stirring of the soil, too, among young shrubs has a sweetening wholesome influence, admitting air and warmth, and inducing a much freer growth than when the surface is suffered to become hard and sodden. Frequently have I been successful by this simple process alone in infusing vigour and health into beds of young shrubs, the sickly stunted appearance of which

clearly betokened a want of attention or nourishment. The soil here, though remarkably silicious, is lamentably deficient of stones, and requires an extra amount of care and labour.

The lesson, then, taught by the late seasons of extraordinary cold and wet are never to make a garden in low-lying damp situations; to give the fullest attention to securing a warm aspect and abundant shelter; to thoroughly drain the soil; to impart mechanical division artificially if the soil does not possess it naturally; and to keep it well broken up among young trees and shrubs. Pray note that I do not advise frequent digging among old shrubs that are in a satisfactory condition of health, for then a firm unbroken surface is undoubtedly best. This remark also applies with equal force to fruit trees in full bearing. I have no latticework or expensive perforated iron over the paths of Peach borders, but I take good care that they are thoroughly fertile, and then make a walk of coal ashes upon them, trampling it as firmly as any other garden path.

Let there be plenty of cosy nooks among the shrubs too, open to the sunny south, but shut in from colder aspects; and here let us try at least two of every novelty of promise, and we shall be far more successful than when we plant them in less favourable situations.—EDWARD LUCKHURST.

GARDEN REFUSE AND ITS USES.

THE late Mr. Robert Fish, who was well known by his writings in this Journal, was deservedly admired for his advocacy of economy in garden management. Many things he would turn to good and profitable use which others were inclined to pass as worthless, and perhaps in nothing was this quality better exemplified than in the way he utilised the refuse of his garden. He used to say that the contents of a well-managed rubbish yard were a boon to any gardener, and so they undoubtedly are, as myself and many others have proved; yet to this day the importance of vegetable refuse is not fully appreciated by all cultivators, many of whom would rather trust to the scanty supply of farmyard manure, which, by-the-by, is in most cases difficult to obtain, than turn to good account the refuse which is daily collected from and around a garden. It is not difficult to have four or five different classes of well-decomposed soil at command for any purpose, provided care is taken to have the refuse overhauled once a month and a selection made of the various materials brought together.

The rubbish should be if possible placed in a yard in the back-ground and out of sight of much-frequented walks. There a process of burning and charring should be going on at intervals, according to the quality of the refuse, which will generally be in the greatest bulk during the autumn and winter months. All hard substances, such as prunings of hedges, fruit trees, shrubs, and the like, should be kept by themselves; sweeping of walks and drives also, because the seeds of weeds are sure to be present in such material. Short grass from the lawn, if not used for mixing with manure for hotbeds, should be laid with the leaves of vegetable crops to decay, and the refuse from under the potting bench should be first sifted, as it contains most of the best mixtures of soil; the finest may be laid aside for immediate use for common purposes, and the other placed with the coarser material for burning or decaying. Leaves of trees from the garden and pleasure grounds should be stored apart from other rubbish to make leaf soil for commoner use, or they may be added to the heap.

Having accumulated a sufficient quantity of materials, which may take one month, or it may be three—a little time should be devoted to their preparation—first of all a fire should be started with the coarsest substances to be burnt quickly if only ashes are required; but if to be charred only when the fire is well alight add some of the other rubbish or sweepings, which will steady it, and by that means a heap similar to that of burning charcoal may be made up to last several days, and in which almost anything can be charred or burnt. By this process no insect can live nor the seeds of weeds retain vitality, consequently it is the best way to reduce or purify such rubbish into a useable state again. The heap for decaying should be turned frequently, and at each alternate turning a portion of quicklime should be added, which will hasten the decomposition. When all is burnt or decayed the heap should be turned over, the charred material being separated from the other for special use, all the rest being thrown into a heap and well mixed so as to be ready for use when wanted, and it will be gratifying to the gardener to know that he possesses several tons of rich fertilising soil to add to any part of the garden

that stands in need of it, for such compost is more beneficial to many garden crops than pure farmyard manure would be.

Charred refuse and burnt soil form a first-rate mixture for adding to stubborn soils. It is very quick in its action, and a capital manure for the Onion bed, and is beneficial in a great degree when trenched in the ground for Carrots, Parsnips, Salsafy, Artichokes, Turnips, and other similar crops. It is better than the rich farmyard manure for the Broccoli crop, for it does not induce a too luxuriant growth, which should be guarded against in growing winter and spring crops of this vegetable. For summer Cabbages and Cauliflowers it is excellent, and is equally good for mixing in the soil for fruit trees, either when they are newly planted or root-pruned. For Asparagus beds it makes a substantial dressing, and for surface-dressing shrubbery borders and beds it is most useful; more especially when the shrubs are old and the soil almost exhausted by the roots, a surface dressing will have a marked effect. For flower beds, too, and borders, whether used for spring or summer bedding, or both, it is a valuable addition; but it must be employed with judgment, as some bedding plants will, by its application, be induced to grow too luxuriantly at the expense of flowering. It is, however, a good manure for Calceolarias, as I have often proved. Some of the best of it may be selected for mixing with loam for potting purposes, and nearly all bedding plants will thrive in it in pots. Sufficient, however, has been said to prove that the rubbish yard with its accumulated contents, commonplace as they may seem to be, is not to be despised and neglected.—THOMAS RECORD.

NOTES ON FRUITS.

SEVERAL of our Apple trees having cankered, died out, or refused to bear, are about to be replaced; and the communication of "WILTSHIRE RECTOR," November 18th, enabled me to decide on giving Stirling Castle a trial. With us Cellini does not canker, but bears freely large well-shaped and finely coloured fruit, which, when judiciously gathered and carefully kept, make excellent dessert fruit. So does Lord Suffield, but this year the clear golden hue has been disfigured by black specks. Many of the Marie Louise Pears have been deformed, drawn up like an S; few have been of good size or form or have attained richness of flavour. As to Jargonelle, our tree on a somewhat shaded western wall will not bear; it made me almost envious to read of it "fruiting so regularly and abundantly"—that most juicy, delicious, and graceful Pear, with tapering body and long slender stalk, as I remember it in former days. Our tree has been root-pruned; a great tap root removed. What more can be done? I am quite sure there is the soundest wisdom in the suggestion of "WILTSHIRE RECTOR," both as to fruit trees and to Rose trees, that few varieties, several specimens of each if you have room for them, proved to do generally well in a soil to them kindly and suitable, repays one far more satisfactorily than in after certain limits attempting to cultivate varieties with which the soil or situation disagrees.—A. M. B.

THE STAPLEFORD ROSES.

IN No. 17 of the Journal I notice an article on the Stapleford Roses, in which reference is made to an opinion given by me respecting these Roses. I think the writer must have partially misunderstood me, and I therefore will repeat my opinion there expressed, and add such observations as the little additional experience of the past season will prompt. From what I saw of the Stapleford Roses in England, as grown out of doors, I did not think that they would prove as valuable as had generally been expected; I found very few specimens that had opened well or that came in good form, and it seemed to be the prevalent opinion that they would not be of great worth for out-of-door culture. It is to be remembered, however, that these Roses have been forced and weakened by propagation, and that a trial of one year will not accurately determine their value for outside culture. Many excellent Hybrid Perpetuals, we find, make a poor show for the first year, that afterwards develop their true worth; and it is possible that some of these will act in the same way. While, therefore, I should not advise anyone to plant them largely out of doors, it is too early to condemn them as unfit for the open ground; it will take another season to determine their worth for this purpose.

As Roses for forcing under glass, I regard them as worthy of the highest esteem. There are few among the Teas that will give the same quantity of fine blooms during the winter that these do. All of them are to be prized for culture under glass, excepting Jean Sisley, Nancy Lee, and perhaps Viscountess Falmouth. Two of these varieties do not open well, and if the former prove a valu-

able variety it will be out of doors only. But of the others we have had very many fine blooms from plants grown in pots, and more especially from those budded on a large plant of Solfaterre. This makes a capital stock, and I advise anyone having plants of Solfaterre to bud in some of the Hybrid Teas. The dark ones, Hon. Geo. Bancroft and Duke of Connaught, will prove, I think, the most valuable; but all the rest, excepting Jean Sisley and Nancy Lee, are promising Roses, and I think no one will make a mistake in procuring them in quantities for the purpose of growing under glass. Those that I like the least are Nancy Lee, Jean Sisley, Beauty of Stapleford, and Duchess of Westminster, none of them being fragrant. Hon. Geo. Bancroft, Duchess of Connaught, and Viscountess Falmouth are all highly scented; this adds greatly to their merit. Michael Saunders and Pearl have also an agreeable perfume, the latter with a decided Bourbon odour. Duke of Connaught has no odour, but is of good form and a fine crimson colour, making a decided improvement on Duchess of Edinburgh.—H. B. ELLWANGER.

GROWING GRAPES WITHOUT FIRE HEAT.

I HAVE many times seen particulars in the Journal concerning the advantages of growing Grapes without fire heat, and that has induced me to give a brief description of my own success in that way. I first wish to acknowledge that I owe all my success to the instructions upon the subject contained in the Journal, for a few years ago I knew but little of Vine culture. My vinery is a span-roof house extending east and west; it is 64 feet long, with a partition in the centre. The Vines are planted inside in a border 4 feet 6 inches wide, the outside border being 6 feet wide. Every year I train up a young rod and cut out the old one, because I find the young rod succeeds best, allowing a length of 6 feet to each.

The following varieties are growing in the early house:—Early White Malvasia, a good Grape, but the berries are very irregular in size; Duc de Malakoff is a good early variety, but the berries are not large; both berries and bunches have, however, been larger this year than we ever had them before. Chaptal is a good bearer with very large bunches, and keeps well; a fine white Grape. Le Sucre is a satisfactory white variety, fruit very juicy and sweet. Black Hamburg is useful, but some of the Grapes turn sour, though this year they are not nearly so bad. Trentham Black is an excellent variety; it has one defect—like Early White Malvasia, the berries are very irregular. White Tokay has large bunches and sets well, almost too well, as there are so many to cut out at thinning, but the fruit does not keep so well as some others. We had 136 bunches of good size in this house. In the second or later house the undermentioned varieties are grown:—Calabrian Raisin I cannot speak favourably of, as the berries always crack. I had three Vines at first, then two were destroyed, and the other tried once more, but with no better success, so that is now removed. Bowood Muscat is excellent; the bunches are very large—from 9 to 12 inches long, and ripened well this year. Lady Downe's is a useful late Grape, as it sets and bears well in our cold house, but the berries are not large. Mrs. Pince's Black Muscat is an excellent Grape; bunches very long, many a foot in length. Last year there were many small berries, due, I expect, to the cold weather; but this year I closed the house earlier, and there is a fine crop. Another Grape here is called Muscat Escholata, but incorrectly, as it is a black variety and late. The berries are large and very even, and they set well; it is distinct from Lady Downe's. We have a better crop of Grapes this year than ever we had before, for we had 236 bunches in the second house. I was informed a short time since that I could not grow Grapes without fire heat, but my informant was greatly surprised to see this house with 236 bunches well coloured.—F. WALKER.

[The Grapes are very useful table fruit, Mrs. Pince's Muscat being of excellent quality. The variety named Muscat Escholata is, we think, Gros Guillaume.—EDS.]

LILY OF THE VALLEY.

UNDER this heading, on page 453, Mr. Bardney has given some very instructive notes, and has, in fact, left but little to be said on the subject of forcing this beautiful flower. That the Lily of the Valley is one of the most popular flowers grown is not surprising, as it really possesses more desirable qualities than any plant with which I am acquainted. Imported roots at times are extremely disappointing, as not only will they not flower during November and sometimes December, but instances have come under my notice where they would not start at all. This failure, as Mr. Bardney suggests, may probably be owing to the crowns being badly ripened, and therefore liable to be irrecoverably injured by hard

forcing. They might have been started too early, but the first week in January can scarcely be called early; or they might have been placed in too strong bottom heat, and other reasons have been suggested as the cause of failure. It is quite certain something was radically wrong, as they never started, although the crowns remained for twelve months in apparently as fresh a condition as when received.

Imported clumps are often received in a hard dry state, and I am inclined to think are often either fatally injured or materially weakened by potting them in such a state, as they are never thoroughly moistened. My practice with such dry clumps is to place them in a tub of water till saturated, allowing them to drain during a night, and prior to potting loosening the bottom and sides of the ball with a pointed stick. Then, again, rather than pot high, should the balls be too long I prefer reducing them, as moisture the roots must have. Properly potted and plunged in a gentle hotbed composed principally of leaves and covered with some of the fermenting material, they will generally flower freely enough early in the year.

In my estimation well-prepared home-grown crowns are preferable for forcing, and frequently give as strong blooms as the imported clumps. If well-established beds are available for the work, it is the best plan to lift large flat square clumps of roots, placing them in ordinary bedding Pelargonium boxes, and adding a little good soil about the roots. The boxes can be placed on hotbeds in the early vineries or forcing pits at intervals according to the demand. If plants in pots are required for any particular purpose, when the blooms are expanding the roots may be taken out, carefully divided into the sizes required, and potted off, working in a few single pieces wherever requisite for symmetry. Good even pots can thus be had without any injury accruing to the bloom. One box of crowns will yield a great quantity of cut blooms with a small amount of trouble. An open position and a rather strong clayey loam suits the Lily of the Valley admirably, and a plot a few feet square would supply clumps for lifting, and also a number of late blooms sufficient for most establishments. Some roots must be replanted every season, and for this I prefer using either the latest forced crowns, or, better still, some of the weakest, planting single crowns rather thickly and irregularly prior to the commencement of growth. The Lily of the Valley is a moisture-loving plant, and will repay a mulching of manure given at the present time, or before growth commences.—W. IGGULDEN.

POTATO DISEASE AND RAINFALL.

"INTERLOPER" has not replied to my queries with regard to the rainfall theory of the Potato disease, and thinks that it is bad logic on my part to ask him to do so. I do not see that. One of the first axioms of Euclid is that things which are equal to the same thing are equal to one another, and "INTERLOPER" in a late number of the Journal asks the advocates of the fungus theory, of which I am one, to harmonise certain facts with that theory of disease, and it is only fair, I think, to ask him to follow suit. He pleads want of time to work up the matter, but the real truth is no amount of time would be of any avail. The rainfall theory is unsound, and the difficulties with regard to it are so many that it cannot be entertained.

Amongst all the scientific witnesses examined before the Royal Commission I do not remember one who did not regard the fungus, the *Peronospora infestans*, as the only true cause of the malady. This fungus is closely allied to the family of the *Saprolegniae* which only flourish in water, therefore it is not to be wondered at that it progresses much more rapidly in wet weather; and being a native of Bogota and other places on the western coast of South America, a warmer climate than ours, it also likes warmth. Bearing in mind these facts and a few others with regard to the disease, everything can be satisfactorily explained and the parts fitted together like the pieces of a Chinese puzzle.

I will now refer to a few of "INTERLOPER'S" queries. "The outside roots of a row and the outside rows of a patch or field always give a larger proportion of sound tubers than the inside rows." I have not found this invariably the case; but admitting that such is generally the case, the outside rows have the advantage of more air and light, and when a patch of Potatoes is diseased and throwing off the spores of the fungus, the Potatoes on the outside rows are like an army which is protected on one flank by a morass—they can only be attacked on the other. "The rows of Potatoes grown over a rubble drain gave sound tubers when the adjoining rows were nearly all diseased." This can be readily accounted for by the greater dryness of the soil producing a healthier growth in the stems of the Potato, so that when

attacked by the fungus it would not make way on the tissues of the plant with anything like the same rapidity it would on those grown in a damper soil; and the extra dryness of the soil would also act in another way, by preventing the disease spreading from tuber to tuber in the soil. The earth when dry is an excellent deodoriser, but when sodden with wet the effect is almost entirely lost. The rows grown on land sheltered from rain by the Searlet Runners were probably less diseased from the same reason as mentioned above. And with regard to "roots grown close to a coarse-growing weed, such as fat hen, invariably giving sounder tubers than other roots in the same patch," I believe this comparative immunity arises from the large weeds keeping off the seeds of the fungus to a certain extent like an umbrella. But my own experience with regard to weeds is somewhat different from that of "INTERLOPER." Sometimes a root appears all the better for being partly protected by weeds, at others worse, but the weeds have been of a smaller kind. Generally speaking I should prefer the weeds removed, as interfering with the proper evaporation of moisture from the soil, and thus tending to aggravate the malady rather than produce a beneficial effect.—AMATEUR, *Cirencester*.

CHRYSANTHEMUM SHOWS.

KINGSTON AND SURBITON.

THIS important Chrysanthemum Society held its annual Exhibition in the large Drill Hall, Kingston, a highly satisfactory display being produced. Semicircular groups of decorative plants alternately arranged with Chrysanthemums and collections of specimen plants were placed near the walls, while the centre of the spacious building was occupied with long tables of cut flowers and fruits and a large collection of graceful table plants. The arrangements generally were very creditable to the painstaking and energetic Secretary, Mr. Thomas Jackson. The unpropitious weather of the first day prevented many from attending, but on the second day the weather was better, and a larger company attended than on any former occasion. Among the liberal prizes offered for Chrysanthemums were the challenge vase, value twenty-five guineas, won in 1879 by Mr. Harding, gardener to J. D. Galpin, Esq., Putney; two handsome clocks, and a silver watch, each of the value of four guineas. The schedule of prizes was most comprehensive and carefully compiled, open to every subscriber, and so arranged that a competitor in the larger classes is prevented from competing in the smaller classes, thereby bringing a greater number of successful exhibitors and a finer display.

Groups.—The best arranged group of miscellaneous plants, flowering, and foliage for effect, was from Mr. King, gardener to R. Few, Esq., Wolsey Grange, Esher; it was most tastefully and admirably finished, and contained very fine decorative Crotons, Palms, Ferns, Eucharis, and Primulas. Mr. C. Attrill, gardener to C. J. Freake, Esq., Bank Grove, Kingston, and Mr. Croxford, gardener to Mrs. Dunnage, Allbury House, Surbiton, were second and third respectively, all exhibiting good collections. Messrs. Jackson also staged a large collection of flowering and foliage plants. The groups of Chrysanthemums arranged in a space of 50 square feet were no improvement on the past. The best, both for quality and effect, came from Mr. C. Bond, Orford House, Ham; the second prize was awarded to Mr. J. Buss, gardener to Mrs. Price, Parkside, Ewell, for a very crowded and non-effective collection; the third went to Mr. J. Otley, gardener to G. F. Belville, Esq., Lismaine, Surbiton, who, in the opinion of many visitors, should have been placed second; fourth to Mr. T. Luff, gardener to H. Evill, Esq., Worcester Park; and an extra prize to Mr. R. Watson, gardener to T. H. Bryant, Esq., Surbiton.

Plants.—In the class for six trained specimen large-flowering plants, the collections exhibited by Messrs. King and Beckett attracted much attention from their enormous size (some being nearly 5 feet in diameter), the number of flowers, and the regularity of their training. The first prize, consisting of a silver watch value four guineas, was awarded to Mr. King, the varieties represented being *La Nympe*, with 136 perfect blooms; *Prince of Wales*, Mr. G. Glenney, Mrs. Dixon, Mrs. G. Rundle, and *Hero of Stoke Newington*—all healthy and remarkably well flowered. Mr. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher, took second honours with a handsome collection, the plants not quite so large as the first-prize collection, but in one or two instances the blooms were larger. All were well grown, particularly *Prince Alfred*, *Prince of Wales*, *Julie Lagravière*, and the trio of the *Rundle* type. Mr. R. Watson received the third prize. For three plants Mr. W. Burns, gardener to H. A. Rigg, Esq., Wykeham Lodge, Horsham, and Mr. J. Child, gardener to J. Gray, Esq., Claygate, were first and second respectively; while in the class for three standards Messrs. Beckett, Watson, and J. Child were placed in the order of their names. The standards were very healthy, but tied rather too late. Some very large and profusely flowered single specimens were exhibited; Mr. King being first with a grand Mrs. Dixon, Mr. Beckett second with a good *Prince of Wales*, and Mr. Burns third with Mrs. Dixon.

Pompons were good. For six trained Mr. R. Watson was the most successful with *Cedo Nulli*, *Fanny*, *Antonius*, *Salamon*, *Helena*, and *Marquis de Coix*. Mr. Lyne, gardener to A. Sehlusser, Esq., was a praiseworthy second with plants naturally grown and very profusely bloomed; a good plant of *Dick Turpin* was very conspicuous. For

three plants Mr. J. Watson, gardener to Captain Cundy, Norbury House, Surbiton, was the only exhibitor, and was awarded the first prize. Three standards were exhibited by Messrs. Lyne and R. Watson, who were placed in the order of their names. Mr. Lyne's collection was *Rosinante*, *Dick Turpin*, and *Bijou d'Horticulture*, very large heads and surprisingly abundant blooms. Mr. R. Watson's single specimen *James Forsyth* was especially noteworthy, while Mr. Lyne and Mr. Curtis occupied the second and third positions with good plants.

Cut Blooms.—These were, taken collectively, remarkably fine and numerous. About 1200 blooms were staged, the Japanese being fine and in large numbers. The great centre of attraction was in the competitive class for the champion challenge vase mentioned above, for which there were seven competitors. The prize was given for forty-eight *Chrysanthemum* blooms, twenty-four incurved and twenty-four Japanese, shown on separate boards. Mr. Tunnington, gardener to C. MacIver, Esq., Calderstone, Liverpool, staged the premier collection, the majority of the blooms being of excellent form. The twenty-four incurved varieties were faultless; some few of the Japanese were not as large as in some of the other collections, but the weight and superiority of the incurved varieties more than balanced the little that was wanting in the Japanese collection. This was altogether a handsome collection, and well merited its position. The varieties were *Queen of England*, *Prince Alfred*, *Empress of India*, *Inner Temple*, *Novelty*, *Golden Empress of India*, *Prince of Wales*, *John Salter*, *Princess of Wales*, *Venus*, Mrs. Heales, *Jardin des Plantes*, *Beauty*, *Nil Desperandum*, *Sir Stafford Carey*, *Lady Hardinge*, *Lord Derby*, *White Beverley*, Mrs. Dixon, *Princess Beatrice*, *White Venus*, *Hero of Stoke Newington*, *George Glenney*, Mrs. G. Rundle, *Japanese*, *Elaine*, *The Sultan*, *Peter the Great*, *Fair Maid of Guernsey*, *Chang*, *Soleil Levant*, *Meg Merrilees*, the finest bloom of the variety in the Exhibition; *Bismarck*, *Comtesse de Beauregard*, *Fleur Parfait*, *L'Incomparable*, *Hero of Magdala*, *Mdlle. Moulix*, *Cry Kang*, *Apollo*, *Nuit d'Automne*, *La Nympe*, and *Baronne de Prailly*, more like *Gold Thread*; *M. Crousse*, *La Frissure*, *Arlequin*, *Fulgore*, and *Laciniatum*. Mr. G. Harding, gardener to J. D. Galpin, Esq., Putney Heath, was awarded the second place. Most of Mr. Harding's Japanese blooms were decidedly larger and superior to the first-prize collection, but in this collection there were two or three weak varieties—an *Elaine* and a *Red Gauntlet* that displayed a very prominent eye, though most of the others were most praiseworthy; but in the incurved section this collection was decidedly many points inferior, the best being *Princess of Wales*, *Nil Desperandum*, *Prince of Wales*, *Mr. Brunlees*, and *Yellow Perfection*. *Sarnia*, *Meg Merrilees*, *Baronne de Prailly*, *Sultan*, *Nuit d'Hiver*, *Oracle*, *Fanny Bouchardet*, *Gloire de Toulouse*, *Fulton*, and *Fulgore* of the Japanese were magnificent. Mr. Gibson, gardener to J. Wormald, Esq., Morden Park, Mitcham, was placed third; his collection of twenty-four varieties of Japanese were decidedly the best collection, taken collectively, in the Exhibition, but his incurved varieties were weak. Mr. Gibson's *Criterion*, *Fair Maid of Guernsey*, and *Baronne de Prailly* were extremely fine. Mr. King was placed fourth, and an extra prize was awarded to Mr. McPherson, gardener to J. Page, Esq., Surbiton, all exhibiting very creditable collections, and thus this handsome trophy goes to the north for the present.

The superiority of Mr. Tunnington's incurved blooms was again displayed in the class for twenty-four distinct, for he was a long way ahead of the other four competitors. Messrs. Beckett, E. Berry, and Croxford were placed second, third, and fourth respectively. For twelve incurved blooms there were nine collections staged. Mr. J. Hill, gardener to A. Savory, Esq., Potter's Park, Chertsey, was a very good first with a remarkably neat and even collection. Messrs. J. Lyne and Burns took second and third prizes in that order. For six blooms Mr. H. Smith, Waverley Abbey, Farnham, and Mr. T. A. Benson, gardener to W. S. Roots, Esq., Kingston, shared the honours between them.

A maiden class was provided, which brought nine exhibits; Mr. H. Smith being placed first, Mr. C. Slade, gardener to Lady Bowater, Richmond Park, second, and Mr. J. Martin, Surbiton, third.

Japanese blooms were numerous. In the class for twenty-four distinct varieties there were ten exhibitors, the finest collection being exhibited by Mr. Beckett, who won a timepiece, value four guineas, with a handsome, even, and brilliant collection comprising *Chang*, *Baronne de Prailly*, *M. Bellew*, *Hiver Fleur*, *Magnum Bonum*, *Soleil Levant*, *Oracle*, *Alba Plena*, *Triomphe du Nord*, *Grandiflora*, *Striatum*, *Fulgore*, *Nuit d'Hiver*, *Sarnia*, *Bouquet Fait*, *Mdlle. Moulix*, *Orphée*, *The Daimio*, *M. Ardene*, and *Peter the Great*. Mr. Lyne's was a very good and close second; Mr. Hinnell, gardener to F. A. Davis, Esq., Surbiton, third, Mr. Harding fourth, and to Mr. Watson an extra prize was awarded.

For twelve Japanese Mr. Hill was deservedly awarded the first prize, Messrs. Burns and Berry being placed second and third respectively.

Anemones were numerous exhibited, Mr. Hill being well to the front with Mrs. Pithers, *Queen Margaret*, *Acquisition*, *Prince of Anemones*, *Gluek*, *Fleur de Marie*, *Louis Bonamy*, and a fine flower of *Lady Margaret*. Messrs. Berry, Gibson, and Hinnell were the other successful exhibitors in this class. Reflexed blooms were also plentifully staged, Messrs. Watson, Hill, and Child being placed in the order of their names.

Other successful exhibitors of Chrysanthemums were Messrs. Smith, Bolt, Pacey, and Press.

Many elegant collections of table plants were staged, the best nine being exhibited by Mr. Smith, Oakfield, Wimbledon Park; they were very graceful, bright, and handsome. Messrs. Watson and Beckett, who were second and third, exhibited well for six plants; Messrs. Lyne King, and Luff were placed in the order of their names. Berried plants, Primulas, and fruit were also well shown.

BOROUGH OF HACKNEY.

The thirty-fifth Exhibition of this old-established Society was held in the Royal Aquarium, Westminster, on the 17th and 18th inst., a fine display being produced, although the cut blooms were less numerous than in the previous year. A handsome bank of plants at the north end of the building in front of the great organ formed by far the most effective portion of the Exhibition, as the majority of the specimens were bearing a large number of blooms, any imperfections of which in size and form were not noticeable at a short distance, the colours being as bright and as well arranged as could be desired. In the gallery there were also some good collections of fruit and vegetables, among the former the Pears and Apples being especially fine and abundant, while Potatoes were strongly represented. The general quality of the cut blooms in the numerous classes was satisfactory, but not unusually good, except in a few of the leading collections entered in the most important classes, where some handsome examples were staged, particularly in competition for the silver cups. Several fine stands of Japanese varieties were contributed in the open classes, so near in merit that the Judges experienced much difficulty in determining the winners. The schedule enumerated thirty classes, the first twenty-two of which were devoted to Chrysanthemums—cut blooms and specimens—twelve being open and ten confined to growers in the Borough of Hackney, and the remaining eight (open) provided for the exhibition of fruit and vegetables.

Commencing with the Chrysanthemums, one of the principal classes was that for a group of plants arranged for effect in a space of 100 square feet. Three handsome prizes were offered—the first, a silver cup valued at £5 given by the Royal Aquarium Company, the second £3, and the third £2. Four competitors appeared, and their exhibits constituted the chief part of the bank already referred to. The cup was awarded to Messrs. Mayhood & Sons, Windsor Nurseries, Lower Richmond Road, Putney, for an effective group of fairly good plants, the varieties numerous, well selected, and the arrangement tasteful. Such striking and showy varieties as Striatum, Dr. Sharpe, Julie Lagravère, and Empress of India with the Rundle family were most noticeable. Mr. G. Stevens, St. John's Nursery, Putney, followed with a similar group, the blooms being fine, but dark colours predominated rather too much. The third position was secured by Mr. Butcher, gardener to R. Glover, Esq., The Priory, Hadley, Barnet, with well-grown plants bearing a profusion of flowers, but the arrangement was not so good as in the preceding, dwarfs and standards being somewhat irregularly placed. The premier award for six large-flowering varieties, dwarf plants in 12-inch pots, was easily obtained by Mr. W. Hall, gardener to J. Stevens, Esq., Tulse Hill, who staged clean healthy specimens, remarkable both for the fine foliage and blooms. Mr. Brunlees, Lady Hardinge, Mrs. Dixon, and Mrs. G. Rundle were the best. Mr. G. Drain, Southgate Nursery, Kingsland, was the only other exhibitor in that class, and was accorded the second prize for moderately good plants. The standard large-flowered varieties were not in excellent condition. Mr. Butcher's premier collection of four were rather loose but bore large and numerous blooms, while those placed second, from Mr. Prickett, gardener to Mrs. Bowerbank, Stoke Newington, though much more neatly trained, were deficient in the blooms; and the same may be said of the third-prize specimens from Mr. F. Wells, gardener to W. A. Smee, Esq., The Limes, Woodberry Down. Mr. Butcher was again successful in obtaining the chief prize for six dwarf Pompons in 9-inch pots. His plants were very healthy and profusely flowered, the most noteworthy being *Mdlle. Marthe*, *Fanny*, *White Cedo Nulli*, and *St. Michael*. Mr. F. Wells was a good second with clean specimens of the *White* and *Lilac Cedo Nulli* and *Mr. Astie*. Mr. Howes, gardener to Mrs. Bennett, Tulse Hill, was third with a fair collection. In the borough classes there was not a very large display, although the specimens were exceedingly well grown generally. The principal class was that for ten plants in 12-inch pots, the Royal Aquarium offering the first prize—a silver cup—which was awarded to Mr. Prickett for good specimens that were noted in our report of the Stoke Newington Show last week, where they also gained a similarly high position. Mr. S. Gilbey, gardener to B. Booth, Esq., was a good second with some fine standards.

Cut blooms, as we have indicated, were not quite so numerous as at previous exhibitions of the Society, but creditable examples were staged in all the chief classes. For twenty-four incurved blooms in the open class four prizes were offered—namely, a £5 silver cup by the Society as the first, £1 as the second, 15s. as third, and 10s. fourth. The difference between the first and second prizes in this and several other classes was very disproportionate. Five collections were staged, all possessing more than ordinary merit. E. Sanderson, Esq., Felix Villa, St. Mary's Road, Willesden, the President of the Society, was the winner of the cup with even and remarkably symmetrical blooms, including the following varieties admirably represented—*Princess of Wales*, *Cherub*, *Golden George Glenny*, *Refulgence*, *Emily Dale*, *Nil Desperandum*, *Lady Hardinge*, *Abbé Passaglia*, *White Venus*, *St. Patrick*, *Golden Empress of India*, *Plenipo*, *Yellow Beverley*, *Venus*, *Mrs. George Rundle*, *Empress Eugénie*, *Isabella Bott*, *Princess*

Beatrice, *Mr. Brunlees*, *John Salter*, *George Glenny*, *Prince Alfred*, *Mr. Bunn*, and *Incognito*—a very good selection and well staged. Mr. C. Gibson, Morden Park, Mitcham, followed very closely, his collection including blooms of fine substance but not quite so even generally as the first, though many of the blooms were much larger. Among those especially noteworthy were *Lady Slade*, *Baron Beust*, *Lady Talfourd*, *Queen of England*, and *Golden Empress of India*. Mr. E. Berry, The Gardens, Roehampton House, and Mr. W. R. Strong, gardener to Mrs. D. Reid, Virginia Water, were third and fourth respectively with neat and fresh blooms. In the same division the competition was extremely close in the class for twelve incurved blooms, no less than seven collections being staged. The premier award was secured by Mr. E. Berry with even specimens of first-rate varieties; the remaining prizes being obtained by Mr. C. Fewell, gardener to J. C. Lanyon, Esq., Birdhurst, South Croydon; Mr. J. Ridout, gardener to J. Haywood, Esq., Woodhatch Lodge, Reigate; and Mr. Bones, gardener to David McIntosh, Esq., Havering Park, Romford. Seven exhibitors also appeared with six incurved blooms; Mr. C. Berry taking the first position, followed by Messrs. Fewell; C. Herrin, Chalfont Park; and A. Wright, gardener to G. Brightwen, Esq., The Grove, Great Stanmore. Large-flowered Anemone varieties were shown in handsome condition by Messrs. Gibson, Berry, and Fewell, who secured the chief prizes, while Anemone Pompons were equally well contributed by Messrs. Butcher and Fewell. In the open class for twelve Japanese varieties there was a magnificent display, the prizes being similar to those for twenty-four incurved blooms. There were nine collections, all containing unusually fine blooms, the colours bright and pure and the varieties well chosen; indeed the class was considered by many judges to be the best in the Exhibition. Mr. C. Gibson succeeded in obtaining the cup with beautiful examples of *Fair Maid of Guernsey*, *Bouquet Fait*, *Fulgore*, *Incomparable*, *Elaine*, *Baronne de Prailly*, *Grandiflora*, *Meg Merrilees*, *Red Dragon*, *Criterion*, *Ethel*, and several others. Mr. G. Harding, gardener to J. D. Galpin, Esq., Putney Heath, followed very closely with handsome blooms. Messrs. Mayhood & Son were third, and Mr. R. Strong fourth, exhibiting very creditably. In the borough class for twenty-four incurved blooms the best were from Mr. Langdon, gardener to Messrs. Munroe & Adams, Brook House, Clapton; Mr. Martin, gardener to F. Appleford, Esq., The Cedars, Woodberry Down, and Mr. J. Holmes, gardener to J. Hicks, Esq., Manor Lodge, Clapton, taking the second and third prizes with neat blooms. The same exhibitors with Mr. W. Holmes also carried off the prizes for six and twelve incurved blooms, while Japanese were fairly well represented by R. Ballantyne, Esq., Linton Lodge, Victoria Park Road.

Fruit was staged in abundance, the Apples and Pears being particularly numerous. Mr. J. Ridout had the best black Grapes, easily securing the first prize with medium-sized bunches of *Black Alicante* extremely well coloured; Mr. J. Wallis, gardener to the Rev. W. Sneyd, Keele Hall, Newcastle, Staffs, taking second with *Gros Guillaume*, fairly good; Mr. J. Goldsmith, Sandhills, Bletchingley, following closely with the same variety. White Grapes were poor. Mr. Bennett, Rapley, sent some fine bunches of admirably finished *Black Alicante*, not for competition, which were highly commended. Dessert Apples were represented by eight collections, very even and of good size. Mr. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, was placed first with good *Ribston Pippins* and *Scarlet Pearmain* among others; Mr. Fanning, Roehampton, and Mr. Fowle, gardener to Sir H. Mildmay, Dogmersfield Park, Hants, taking the remaining prizes. A similar number of collections of culinary Apples were contributed, also in good condition, Messrs. Ross, Dean, and Fowle taking the prizes in the order named. Pears were remarkably large and well ripened, the premier collection of dessert varieties from Mr. Fowle attracting much admiration. *Duchesse d'Angoulême*, *Doyenné du Comice*, *Glou Moreau*, *Chaumontel*, *Beurré Bachelier*, and *Pitmaston Duchess* were the varieties, all in grand form. Messrs. Dean and W. Hall secured the second and third prizes. In addition to the competing exhibits Mr. John Watkins of Hereford contributed about sixty varieties of Apples, and the General Horticultural Company (Mr. John Wills) had a tasteful arrangement of fine fruit, vegetables, and flowers.

Vegetables were shown in fine condition by several exhibitors. There were seven collections in the class for not less than eight varieties of vegetables, all of which were very creditable. Mr. Austin, gardener at Ashton Court, Bristol, secured the premier award with a generally excellent assortment. His best dishes were *Orange-field Tomatoes*, *Telegraph Cucumbers*, *Tripoli* and *Reading Onions*, *Carter's Stratagem Peas*, *Lapstone Kidney Potatoes*, *Veitch's Autumn Giant Cauliflower*, and *Snowball Turnips*. Mr. W. Iggulden, Orsett Hall Gardens, Romford, followed very closely with good examples of *Trophy Tomatoes*, *Carter's Perfection of Beets*, *Carter's Jersey Lily Turnips*, *Snowflake* and *Beauty of Kent Potatoes*, and *Sutton's Improved Reading Onions*. The third prize was awarded to Mr. Herrin for a very even clean collection. The two Potato classes were well filled, many of the leading Potato growers exhibiting. Nine collections of twelve dishes were staged, and the competition was very close. Mr. R. Dean obtained first honours with very clean medium-sized examples. Mr. C. W. Howard of Bridge, Canterbury, was an excellent second, and Mr. Ross, Welford Park Gardens, was awarded the third prize. There were seven collections of six varieties, the prizetakers being Mr. C. W. Howard; Mr. Miller, gardener to the Marquis of Donegal, Newbury; and Mr. R. Dean.

Messrs. James Carter & Co., London, exhibited large heaps of Magnum Bonum, Scotch Champion, and a very great variety of other Potatoes in good condition, and also a collection of vegetables, which included well-grown examples of Model Cucumber, Perfection Brussels Sprouts, Pinesfield Improved White Spanish Onion, Perfection of Beets, Mont Blanc Cauliflowers, and several more of their specialities. Messrs. Sutton & Sons brought fine heaps of their Magnum Bonum, Reading Abbey, Woodstock Kidney, and Redskin Flourball Potatoes, and a general collection of leading varieties, which comprised good dishes of Purple Blush, Red Fluke, International, St. Patrick, Yorkshire Hero, Vicar of Laleham, and other popular varieties. Messrs. Charles Lee & Sons, Hammersmith, also exhibited a good collection of Potatoes, which included a large heap of the new Defiance Seedling, Hammersmith Kidney, Wonderful, Pride of America, Blanchard, and Late Rose.

Among the special exhibits in the central hall were collections of handsome Pelargonium blooms and Salvias from Mr. H. Cannell, Swanley, Kent, that formed a bright little group, backed up with plants of the graceful *Prenanthes elegantissima*. Mr. Biggs of Lewisham was awarded a special prize for enormous dwarf-trained specimen *Chrysanthemums*, fairly well flowered but rather coarse; and Mr. Peachey, Stamford Hill, sent blooms of the *Chrysanthemum Angelina*, for which a first-class certificate was awarded, as at Stoke Newington. The general arrangements were very satisfactory, and highly creditable to Mr. W. Holmes, the Secretary, except in the system adopted of writing the prize cards out after the judging, which, as we alluded to last year, caused considerable delay.

CROYDON.

This Society held their fourth annual autumn display on Friday and Saturday last in the small Public Hall. In the plant classes there was a decided falling-off, although several of the groups were very attractive. The cut-flower classes were above the average, the vegetable and fruit very fine. Mr. Gibson, gardener to J. Wormald, Esq., Mitcham, obtained the premier award for twelve incurved blooms and twelve Japanese blooms. His collection was very fine, some of the blooms being those he exhibited at the Aquarium a few days previous. Mr. C. Welstead, gardener to Mrs. Lodge, Bramley Hill, Mr. C. Roffey, and Mr. H. Reed were among the prizetakers for groups of *Chrysanthemums*; while Mr. J. Fewell, gardener to C. J. Lanyon, Esq., Birdhirst, was a successful prizetaker in a dozen classes. Mr. C. Orchard, gardener to F. W. Harris, Esq., Coombe House, also exhibited very largely, and was awarded several first prizes; Messrs. Elsey, Johnson, and Brice exhibited well and obtained several prizes. The arrangements were well carried out under the superintendence of Mr. C. Roffey, the Secretary.

MAIDSTONE.

On Friday last the 19th inst. this Society held its annual Exhibition of *Chrysanthemums* and fruits in the Corn Exchange of Maidstone; and although the former were neither so numerous nor of such quality as might have been expected from the liberal prizes offered, yet the magnificent Apples and Pears staged in the fruit classes compensated to a great extent for the deficiency. It is remarkable that in one of the best districts of favoured Kent *Chrysanthemums*, both plants and cut blooms, should be exhibited in some instances inferior to those produced by such urban societies as Stoke Newington and Lambeth, where the members have all the disadvantages to contend with that a smoke-laden atmosphere can occasion. This is still stranger when it is considered the prizes offered at Maidstone in the chief classes far exceed those at the majority of *Chrysanthemum* exhibitions. Every possible encouragement was given both to growers in the district and to those of England generally, but with comparatively poor results. The reason for this it is not easy to discern, but it certainly appears that in one portion of the kingdom at least this deservedly popular plant does not receive the attention it merits.

The large hall of the Corn Exchange was devoted to the *Chrysanthemums*, and considering the few entries the arrangement was all that could be expected. Had there been three times the number a much better effect would have been produced, for some difficulty was evidently experienced in disposing the exhibits so as to occupy the space at command, the plants being arranged near the walls and the cut blooms on the long central table. The principal of the plant classes was that for twelve large-flowering varieties, in which the first prize was a silver cup, value five guineas, presented by Lord Holmesdale. The best collection, not only in that class but in the whole Exhibition, was from the Rev. C. W. Shepherd, Trottscliffe Rectory, Maidstone, and Honorary Secretary of the Society, to whom the cup was awarded. The plants were healthy, well clothed with foliage, and bore numerous but rather small blooms. Golden George Glenny was a handsome specimen, fairly well trained and of good size, the blooms being neatly formed and abundant. Other noteworthy varieties were Golden Christine, Pink Venus, Hereward, and Mrs. G. Rundle. The second position was accorded to plants from H. A. Brassey, Esq., M.P.; these also were vigorous and fresh but rather irregular, the most compact being a specimen of Vesta. T. Phillips, Esq., West Malling, was third with even plants, but in rather poor condition. For six plants of incurved varieties Charles Neve, Esq., Chart Sutton, was placed first with examples of the Empress of India bearing handsome blooms; J. W. Braddick, Esq., Broughton Mount, and W. J. Newberry Esq., Leeds, taking second and third. Mr.

Neve also had the best single specimen—namely, Mrs. G. Rundle, moderately well flowered. The Rev. C. W. Shepherd exhibited the only collection of six Japanese varieties, and secured the chief prize for specimens of The Cossack, Mons. Lemoine, Peter the Great, and Elaine flowering profusely, the latter especially, though the blooms were not of excellent form.

But little more can be said in favour of the cut blooms than of the plants, for there was scarcely a first-rate collection staged. The class for thirty-six incurved blooms was open to all England, a handsome silver cup value ten guineas constituting the first prize, £4 the second, and £2 the third, which might have been expected to insure a large number of entries and keen competition; this was not the case, however, for only two collections appeared, and the Judges must have had very little difficulty in determining their relative position. Mr. J. Hillier, Wandsworth, gained the cup with blooms of medium size, moderately good in form and substance, but well staged. Some of the best in the stand were Princess of Wales, Golden Empress of India, Nil Desperandum, and Nonpareil. The second prize was awarded to A. Warde, Esq., West Farleigh, who had rather irregular blooms, though the Rundles were fine. C. N. Kidd, Esq., Dartford, exhibited the finest of the three collections of twenty-four incurved varieties, and easily secured the chief prize with even blooms, Prince of Wales and Prince Alfred being very well represented. Mr. Warde and Mr. S. Davis, The Cemetery, obtained the other prizes with fairly good blooms. The same exhibitors held similar positions with eighteen blooms. For twelve incurved varieties Frederic Pine, Esq., was first with even and good blooms, among which Prince Alfred, Mr. Brunlees, and Lord Derby were particularly notable. J. P. Franklyn, Esq., Maidstone, and J. B. Green, Esq., Tovil, were accorded equal thirds. Mr. F. Pine staged the only collection of *Anemone* varieties, and was adjudged the first prize; some of the blooms were large and well formed, particularly Gluck, Fleur de Marie, and Marginatum. The same exhibitor was again first with six Japanese blooms, bright and fresh, followed by Mrs. Stoddart Douglas, Tuubridge Wells, and Mr. Warde.

The fine-foliage plants were very useful in filling up what would otherwise have been unpleasantly bare spaces between the *Chrysanthemums*. Three very good collections were contributed, the one for which the premier prize was awarded being from Mr. J. B. Green's garden. The plants were well grown and remarkably healthy, the most noteworthy being *Seaforthia elegans*, *Maranta zebra*, and *Adiantum farleyense*. Mr. H. A. Brassey's specimens were very close to the first in merit, a large example of *Fittonia argyroneura* and *Alocasia metallica* were particularly fine. Mr. F. Pine secured the third position with rather small specimens.

The display of Apples in that portion of the building devoted to the fruit was extraordinary, and it is rare to see at exhibitions such handsome examples as gained the chief prizes. Some good Pears were also shown, but much less numerous, as only two classes were devoted to them. The most important exhibits were in the open class for eighteen dishes of Apples, distinct varieties; H. A. Brassey, Esq., contributing the first prize—a five-guinea silver cup, and R. Leigh, Esq., M.P., the second and third of two guineas and one respectively. There were four collections staged, all possessing more than ordinary merit, but that from W. Skinner, Esq., Broughton, for which the cup was awarded, was unquestionably one of the finest that has ever been staged. Some examples of Loddington were magnificent, and measured 14½ inches in circumference. Warner's King, Beauty of Kent, Mère de Ménage, and Bedfordshire Foundling were also of great size and excellent form. The following varieties, which completed the collection, were admirably represented by clean handsome fruits—Golden Knob, Cox's Orange Pippin, King of the Pippins, Court Pendu Plat, Wyken Pippin, Mannington's Pearmain, Hanwell Souring, Bleuheim Pippin (very fine), Winter Hawthornden, Round Winter Nonesuch, Pomeroy, Tower of Glammis, and Ribston Pippin. This handsome collection was greatly admired both by the pomological and general visitors. The second prize was accorded to Mr. H. A. Brassey for excellent Apples, very little inferior to the first; the following varieties being especially well represented by handsome specimens—Cox's Orange Pippin, Brabant Bellefleur, Golden Noble, Small's Admirable, Dutch Mignonne, Beauty of Wilts, and Blenheim Pippin. Sir Francis Geary, Bart., Oxonhoath, was third with large fruits but rather green; a dish of fine New Hawthornden was noteworthy. In the two classes for dessert and culinary Apples respectively, nine dishes of each, W. Robinson, Esq., offered the chief prizes, some fine specimens being staged in competition. Mr. A. Warde had the best collection of dessert varieties, clean and good in form—Keddleston Pippin, Cox's Orange Pippin, Ribston Pippin, Melon Apple, and Golden Russet were very even and handsome. G. Edmett, Esq., had good Ribston and Wyken Pippins in his second-prize collection; L. Killick, Esq., Langley, taking third with fine Worcester Pearmain among others. Mr. Warde obtained a similar position with nine dishes of culinary Apples of good size and even—Hanwell Souring, Mère de Ménage, Belle Dubois, and Loddington were remarkable. Mr. Brassey was a close second, and Mr. Killick obtained third with specimens of Loddington and Warner's King in good form. For three dishes of Apples Mr. Brassey was first in the dessert class with Claygate Pearmain, Blenheim Pippin, and Cox's Orange Pippin beautifully ripened. W. Blest, Esq., Wateringbury, and Mr. Braddick followed with smaller but good specimens, Braddick's Nonpareil in the last-named collection being excellent. A. Killick,

Esq., Weavering, was the most successful exhibitor in the culinary class, easily securing the first prize with handsome examples of Cellini, Blenheim Pippin, and Weavering Apple. Mr. Green was second with nearly equally good fruit. Mr. Braddick taking the third position. Culinary Pears were well shown by G. Stockdale, Esq., Watlingbury, and dessert varieties by Mr. Braddick, these gentlemen securing the premier prize in each class, the latter staging some very good specimens of Chaumontel and Glou Morceau. Mrs. Stoddart Douglas was the principal exhibitor of Grapes, taking first prize in each class with medium-sized bunches of Black Alicante but superbly coloured, and Muscat of Alexandria rather small but apparently well ripened. Other moderately good Grapes were sent by J. Whatman, Esq., Vinters; J. Hollingworth, Esq., Turkey Court; and Capt. Brencbley, East Sutton.

Among the special exhibits the most remarkable was a collection of Apples from Mr. L. Killick, comprising 150 varieties all in good condition, but the Loddington Seedling in the centre were extremely fine. A special prize was deservedly awarded to Mr. Killick. Mr. Braddick sent a basket of handsome Pears; Messrs. Thomas Frost and Sons had collections of Potatoes shown as grown. In the large hall Herbert Monckton, Esq., Maidstone, exhibited a basket of vegetables and fruits which were tastefully arranged with foliage and flowers, the dried silvery pods of Honesty forming a pretty margin. Mr. S. Dean contributed beautiful baskets of Chrysanthemum blooms arranged with foliage over the handle and rising from the centre of the basket into a hemispherical mass of bright and carefully selected colours. This was highly commended by the Judges.

The weather proved as favourable as could be desired, and large numbers of visitors attended the Exhibition, especially in the evening.

SOUTHAMPTON.

The autumn Exhibition of this Society was held in the Victoria Skating Rink on the 16th and 17th inst., the groups of Chrysanthemums and plants completely filling the large building. The cut flower classes were also much better than last year, whilst the fruit and vegetables were most abundant. The whole of the arrangements were most satisfactorily carried out by an energetic executive with Mr. Fuidge as Secretary.

In the nurserymen's class for a group of plants Messrs. Oakley and Watling were awarded the first prize, Messrs. J. and C. Ransom the second, and Mr. E. Hillier the third; all exhibiting small but useful specimens. In the corresponding class for gardeners Mr. Wills, gardener to Mrs. Pearce, The Firs, Bassett, was a very good first; Mr. J. Aymes, gardener to Mrs. Eliot, York, occupied the second position; and Mr. Hinds, gardener to Lord Wimborne, the third. For a group of Chrysanthemums arranged in a limited space there were six competitors, the post of honour being obtained by Mr. Allen, gardener to J. Bailey, Esq., Elmfield Hill, Mr. Wills being placed second, Mr. Aymes third, and Mr. T. Osborne, gardener to J. Buchan, Esq., Wilton House, fourth, all exhibiting well. For twelve and six plants and six Japanese plants grown on single stems there was a spirited competition between Messrs. Wills, Aymes, Allen, Osborne, and Thomas, who secured the principal prizes. The plants exhibited were not trained with that uniformity customary at the London shows, neither could the flowers in all cases be said to be of such excellence, still the majority were very showy and attractive.

In the open class for twenty-four cut blooms, sixteen incurved and eight Japanese, the back row to be Japanese, there were six collections staged, the premier award of the Exhibition going to Mr. Molyneux, gardener to W. H. Myers, Esq., Swanmore Park, Bishop's Waltham, for a collection that we have only seen surpassed this season by Mr. Tunnington at the Kingston Exhibition for the challenge vase. Mr. Molyneux's blooms were large, fresh, and of that beautiful globose form that is so desired in a good incurved flower. Mr. Wills was a very good second, Mr. Moorman third, and Mr. Stillaway, gardener to the Right Hon. Earl Cairns, Bournemouth, fourth. In the other classes Messrs. Molyneux, Wills, and Moorman were the chief prizetakers.

Fruit and vegetables were plentiful; several fine stands of Grapes were staged; the Apples and Pears not only large but highly coloured. Poinsettias, Primulas, and Cyclamens were all well represented. It was, collectively, a very fine show, and combined as it was with an exhibition of British and foreign cage birds, attracted a large number of visitors.

TUNBRIDGE WELLS.

Under most unfavourable circumstances as regards the weather this Society's annual Exhibition of Chrysanthemums, plants, and fruit was opened on Thursday, the 18th inst., in the handsome hall near the station. Snow was falling nearly the whole of the afternoon, consequently deterring a large number of persons from visiting the Show, but fortunately the weather proved remarkably fine on the following day. The display of Chrysanthemums was one of the largest held this year, the specimen plants, particularly the dwarf-trained Pompons, being excellent; but the cut blooms, though numerous and neat, were slightly deficient in size and substance in the majority of the collections. Provision was made for the exhibition of miscellaneous plants, and those for table decoration were very well represented; but the fruit was the chief feature of the Exhibition both in quantity and quality, the Apples being staged in most satisfactory condition. The schedule contained no less than sixty-three classes in three divisions—A, open to all exhibitors in East Kent and

Mid-Sussex; B, for gentlemen's gardeners and amateurs within a radius of fourteen miles of Tunbridge Wells; C, for those within an eight-mile radius of this town; and D, devoted to fruit classes similar to division A. The prizes were not of high amount, the majority ranging between 10s. and 2s., and yet the entries were numerous, as they often are where many small prizes are offered instead of a few large ones. It is scarcely necessary to add that under the superintendence of the Secretary, Mr. E. Charlton, the general arrangements were highly satisfactory.

Among specimen Chrysanthemum plants one of the most important classes was that for a group of eight arranged for effect, the style of training not being stipulated but left to the exhibitor. The chief prize in the class was a silver cup, value three guineas, offered by the tradesmen of Tunbridge Wells, and formed, of course, the coveted object of the competitors, though the second and third prizes were £2 and £1 each respectively—with the exception of one other class the highest offered. There were four entries, the plants constituting bright and effective groups to the left of the entrance, at one side of the spacious and handsome hall which the Society is so fortunate in obtaining. Mr. F. Early, gardener to G. A. Brittain, Esq., Ferndale Park, succeeded in winning the cup with vigorous dwarf and pyramid and standard specimens, both foliage and blooms of which were excellent. They were tastefully and effectively arranged; the most noteworthy varieties being Peter the Great, Magnum Bonum, Dr. Sharpe, Prince of Wales, and Fair Maid of Guernsey, all exceedingly well flowered. The second position was accorded to Mr. Adams, gardener to T. Grant, Esq., for smaller specimens, but indicating similarly good culture. Mr. J. Allan, gardener to Lady G. Field, Ashurst Park, followed with bright and healthy examples, but rather deficient in the number and quality of the blooms. The corresponding class in division B was also for eight specimens, a silver cup of equal value to that already noticed being given by the ladies of the district as a first prize. This, although restricted to fewer growers, was also well competed for, three attractive groups extending nearly half the length of the hall on the right of the entrance, thus corresponding with those in the first class. Mr. J. Wilkins, gardener to Mrs. S. Williams, Sbirley Hall, Langton, contributed the best collection, including plants in a surprisingly vigorous state, the foliage excellent and the flowers of good form; Mrs. Sharpe, Fulton, and Mrs. G. Rundle were the most noteworthy. Mr. R. Beilby, gardener to W. H. Tindall, Esq., Hollyshaw, Camden Park, was second with less luxuriant but neat and profusely flowered specimens. The third position was accorded to Mr. J. Nutting, gardener to Col. Ramsden, Asburst, for rather small plants, among which was, however, an admirable specimen of the bright and effective variety Bob. The entries in the class for six dwarf-trained large-flowered varieties constituted an imposing bank at one end of the hall, serving well to balance the Pompon specimens at the opposite end. The premier award was secured by Mr. Early with well-grown, handsome, and profusely flowered specimens of Prince of Wales, Mrs. Haliburton, Baron Beust, Golden George Glenny, and Mr. G. Rundle, all very even and cleverly trained. Mr. John Charlton, Summer Vale Nursery, was a very close second, the blooms large and of good shape, and the plants vigorous, though the stakes employed in training were slightly too prominent. Mr. Wilkins took the third place with neat and healthy plants, but bearing comparatively few blooms. The Pompons were remarkable for their great size generally and the abundance of their blooms. Those opposite to the incurved were particularly fine, and Mr. John Charlton well deserved the first prize he obtained for six large and handsome specimens, of which President Decaisne, Cedo Nulli, Fanny, Calliope, and Mr. Astie were excellent in every respect. Many other admirable collections were staged, the principal prizetakers being Messrs. Beilby, Early, Mitting, and Wilkins. The total number of specimens exhibited exceeded two hundred—sufficient to occupy considerable space, and in a less commodious building could not have appeared to nearly so much advantage.

Cut blooms were numerous represented, but in many of the collections there was plenty of room for improvement; indeed some were a long way from the exhibition standard. However, those accorded the chief honours in the classes were in several instances marked by more than ordinary merit. The best twenty-four incurved blooms in division A were staged by Mr. J. Allan; they were even, fresh, and moderately good in substance, especially Cannell's Bronze, Rev. J. Dix, Princess of Wales, and Guernsey Nugget. Mr. John Charlton's second-prize blooms were smaller, but neater and very clean. The B class for twenty-four incurved was not very well filled; Mr. A. Henderson, gardener to J. Deacon, Esq., Mabledon Park, taking the chief prize for fairly good blooms, among which Barbara was especially worthy of notice. In the open class for twelve of the same section Mr. Charlton won with medium-sized blooms, but of excellent form. Queen of England, Antonelli, Mrs. G. Rundle, Golden George Glenny, Rev. J. Dix, and Lady Hardinge were the best in the stand. Mr. W. Cornwall, gardener to F. Burchard, Esq., Horsted Place, Uckfield, and Mr. Early followed with fair collections. Mr. J. Charlton was again in the chief position with twelve Japanese, his blooms possessing a creditable freshness and purity of colour. Bismarck, Garnet, Striatum, Mons. Charles Hubert, and Red Gauntlet were also of good size. Mr. Early was in this case a close second, but the varieties were not quite so distinct or well chosen. Mr. Allan was a good third with neat blooms. Japanese were well represented in two other classes. Mr. G. Ware, gardener to Miss Morgan, Hangers-

hill Park, Messrs. Allan and Early, being the prizetakers. Mr. Ware also staged two handsome collections of Anemone Pompons—namely, six and twelve, and obtained the principal prize in each class with fine examples of Calliope, Mr. Astie, Antonius, Madame Montels, Mrs. Wyness, Rose Margaret, and Regulus.

Several classes were devoted to such plants as Primulas, table plants, Epiphyllums, Gesneras, &c., in all of which there were noteworthy specimens; but the most remarkable of all were the plants of *Gesnera zebrina*, for which Mr. D. Buchanan, gardener to Dr. Siemens, Sherwood Park, obtained the first prize. They were in uncommonly vigorous health, the foliage large and richly coloured, while they were flowering most profusely, forming a really handsome group. Some of the Primulas were also well flowered, particularly those from Messrs. Beilby and Henderson. The best six table plants were contributed by Mr. G. Goldsmith, gardener to P. C. Hardwicke, Esq., Tunbridge, who had elegant and useful plants of *Aralia Veitchi*, *Grevillea robusta*, *Dracæna Guilloylei*, and *Casuarina sumatrana*, all in 6-inch pots and very healthy. Among the not-for-competition exhibits were the following—From Mr. Early, a large and handsome specimen of *Chrysanthemum Peter the Great*, dwarf-trained, more than 4 feet in diameter, and bearing nearly two hundred fine blooms; the training was excellent, and the plant was greatly admired. From Mr. H. Cannell flowers of Zonal Pelargoniums and Primulas, very bright and attractive. But the most charming of all the miscellaneous exhibits was a group of *Calanthes* and *Sonerila Hendersoni* from Mr. W. Miles, gardener to D. Harris, Esq., Lamberhurst. The *Calanthes* were flowering very freely, but the chief feature of the group was the *Sonerila*. The plants were of various sizes, but the majority were in 60-size pots and in admirable condition for decorative purposes, the peculiar silvery-spotted foliage and abundant rosy flowers being remarkably handsome. Some handsome specimens of *Poinsettia pulcherrima* major were exhibited by Mr. J. Charlton; they were in 6-inch pots, very compact in habit, branching, and bearing several large heads of bracts, which possessed somewhat of a rosy tinge. This variety is admirable for decorative purposes, as it is surprisingly effective.

Fruit was very abundant and good, about 230 dishes being staged, and the display of Apples and Pears was surprising, a wide table stretching half the length of the hall being entirely occupied with the entries in those classes. For a collection of twelve dishes of fruits only two competitors appeared, the first prize being secured by Mr. Henderson with excellent Grapes, Pears, and Apples. Of the first-named the Black Alicante were notable for their well-finished appearance; while the Beurré Diel and Glou Morceau Pears, with King of the Pippins, Blenheim Pippin, and Cox's Orange Pippin, were of good size and colour. Mr. J. Allan was second with clean well-grown fruits, one bunch of Gros Colman Grapes being well finished and large. The best three bunches of black Grapes were the finely coloured Black Alicantes from Mr. A. Bashford, gardener to Mrs. Stoddard Douglas, Chilston House; Messrs. Allan and Henderson following with smaller bunches and berries. Mr. W. Johnston, gardener to the Marchioness Camden, Bayham Abbey, won the premier prize for white Grapes with three good bunches of well-ripened Muscat of Alexandria. In the class for six dishes of dessert Pears there were six exhibitors, Mr. Goldsmith being placed first with fine fruits of Beurré Diel, Beurré d'Amanlis, Doyenné du Comice, and Conseiller du Cour. For three dishes of culinary Pears Messrs. Johnston and Goldsmith secured the prizes, the first with extremely large examples of Uvedale's St. Germain, Verulam, and Catillac. Mr. Henderson had the best six dishes of dessert Apples, even and well-coloured fruits of Ribston Pippin, Blenheim, and Golden King among others. Messrs. Goldsmith and Allan followed closely. Mr. Henderson held a similar position in the corresponding class for culinary Apples, staging Northern and Yorkshire Greenings in excellent style, Mr. Goldsmith and Mr. K. Maher, gardener to Mrs. Foster, Boyne House, securing the remaining prizes. Of the classes for threes and single dishes it is not necessary to speak in detail, but the majority were excellent.

The whole Exhibition was a very creditable one to the Society, but with additional funds at their command no doubt even better results would be obtained, as many of the prizes might be advantageously increased in value.

RICHMOND.

As an effective and handsome floral display the Exhibition held at Richmond on Tuesday and Wednesday last is entitled to rank among the finest *Chrysanthemum* shows of the season. The spacious and beautiful assembly rooms of the Castle Hotel, in which the numerous exhibits were so tastefully arranged, are admirably adapted to displays of this character, the successful disposition of varied plants and flowers being considerably facilitated by harmonious surroundings. Groups of miscellaneous plants, *Chrysanthemums* predominating, forming fine masses of colour at the sides of the rooms, agreeably relieved by graceful Palms and Ferns, while long tables bore the numerous collections of cut blooms. Fruit was well represented, Apples especially; Pears being shown in fair condition. Vegetables were good, table decorations attractive, and the miscellaneous exhibits both abundant and of excellent quality. Altogether the second autumn Exhibition of the Society was a decided success, and the Committee with their able Secretary, Mr. Albert Chancellor, have reason to be well satisfied with the results of their efforts. The follow-

ing is a necessarily brief review of the principal classes, the short time at our disposal compelling us to curtail the report.

The groups of *Chrysanthemums* formed the chief feature of the display in the larger of the two apartments, eight exhibitors competing. Mr. G. Harding, gardener to J. D. Galpin, Esq., Putney, secured the principal award with healthy vigorous specimens bearing unusually handsome blooms; Mrs. Beckford, Orford House, Ham, and Captain Webb, Riverside, Twickenham, obtaining the second and third places with similarly attractive groups. Mr. E. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher, staged some good specimen plants, and many other fine collections were contributed. The cut blooms were generally of good substance, clean, well formed, and numerous. The collection of eighteen incurved varieties were excellent; Mr. H. West, gardener to H. Hoskins, Esq., Putney, staging the finest examples; but the class for twelve incurved was by far the strongest, there being a dozen competitors, all exhibiting well. Mr. W. R. Strong, gardener to Mrs. D. Reid, Virginia Water, was an excellent first, closely followed by Mr. J. Hill, gardener to A. Savory, Esq., Chertsey; Mr. West; and Mr. G. Kent, gardener to Lord Brabazon, Coombe End, Kingston. Japanese varieties constituted a grand display, the best collection of twenty-four being from Messrs. Beckett, Strong, and J. W. Moorman, gardener to Miss Christy, Coombe Bank, Kingston, all exhibiting handsome and brightly coloured blooms very close in merit. Twelve Japanese were well shown by Mr. Hill, who also had the finest stand of Anemone varieties.

There were eighteen entries in the class for four dishes of Apples, Mr. W. Fanning, The Convent, Roehampton, and Mr. F. R. Kinghorn taking the chief prizes with fine specimens. Pears were not so numerous nor so good; but collections of fruit and Grapes were well shown by Mr. Hudson, gardener to A. J. Atkinson, Esq., Gunnersbury House, and Mr. W. Bates, gardener to J. E. Meek, Esq., Poulett Lodge, Twickenham. The competition for the special prizes was generally good, and the miscellaneous exhibits numerous.

During the afternoon of the opening day a large and aristocratic company assembled; H.R.H. Princess Mary also honouring the Society by visiting the Exhibition.



THE usual monthly dinner of the HORTICULTURAL CLUB took place at the Club House, Arundel Street, Strand, on Tuesday, the 16th. There was a large attendance of members. The following have recently been elected members:—Thomas B. Heywood, Esq., Reigate; J. Adams, Esq., Tavistock Street; C. F. Hore, Esq., Holden, Beckenham; and E. Badger, Esq., Birmingham.

— A CORRESPONDENT sends us the following note—"The recently formed FINSBURY PARK AND DISTRICT AMATEUR CHRYSANTHEMUM SOCIETY held its first annual Exhibition at the Holloway Hall on 16th and 17th inst. The Society has begun in a small way, but there is every reason to believe that it will develop and increase largely in importance in the course of a few seasons. As it is, the Show reflected great credit upon the Committee and the indefatigable Honorary Secretary. The exhibits were arranged in the small hall; but if the Society meet with the encouragement and support it deserves and the Committee anticipate, the large hall may possibly be utilised in future years. In several instances the plants were very fine, and the cut flowers contributed by Mr. Cochrane, Superintendent of Finsbury Park, were also well worthy of notice. The effective decorations of the hall were supplied from the establishment of Messrs. Cutbush and Son of Highgate; and Mr. Howes of Blackstock Road, nurseryman, exhibited some plants, but they were not for competition. Messrs. Rundell, Charlett, and Boyd were the chief prizetakers."

— THE cut flowers of *SALVIAS* staged by Mr. H. Cannell of Swanley at the Royal Horticultural Society's last meeting, and at the Royal Aquarium on the following day, attracted the attention of many visitors, who were apparently unacquainted with the beauty of some species and varieties at this dull season. But if a few flowers were sufficient to awaken so much admiration, it can readily be imagined that a house 100 feet long full of *Salvias* of such brilliantly-coloured forms as *Pitcheri*, *splendens* *Bruanti*,

Betheli, pseudo-coccinea, and Hoveyi, must be simply unique. Yet at Swanley there is a house of the dimensions named devoted entirely to these charming plants, all in pots, vigorous, and profusely flowered. The first three, for which certificates were awarded at Kensington, cannot be too strongly recommended.

— LIKE many of its allies, such as the *Melastomas*, the *Bertolonias*, and the *Lasiandras*, we have in the *SONERILAS* charming plants for decorative purposes, some combining pretty flowers with a corresponding attractiveness of foliage, the latter being by far the most durable portion of the plant's beauty, as the flowers in many are rather fleeting. There are several species and varieties of *Sonerila* in cultivation, but none can surpass *S. Hendersoni* when in such fine condition as it was shown by Mr. Miles at the recent Tunbridge Wells Exhibition. Some of the plants were in 48 and 32-sized pots, forming bushy profusely flowered specimens, but the majority were in 60-size pots, neat, little, extremely useful plants. The peculiarly silvery mottled and spotted leaves constituted a natural and admirable background to the abundant clusters of rosy-tinted flowers, and rendered the collection in which they were included the admiration of all the visitors. Other and similarly attractive forms are *S. margaritacea* and *S. picturata* that differ from the one noted above in the colour and markings of their foliage.

— ANOTHER feature at the same Exhibition was the plants of *GESNERA ZEBRINA* sent by Dr. Siemens' gardener, Mr. D. Buchanan, and for which the first prize was awarded in the class. These well indicated the great decorative value of a generally appreciated plant that is, however, rarely seen in such perfection. Mr. Buchanan has evidently given it exactly the treatment it requires, for more compact specimens, with more richly-coloured foliage and a greater profusion of bloom in 48 and 32-sized pots, it would be difficult to obtain. *Gesnera zebrina* is unquestionably one of the most useful of the genus, for it succeeds under cooler treatment than the majority, producing its brilliant flowers freely at a time of year when it is not easy to maintain an effective floral display. But were the deeply coloured foliage its only recommendation it would still amply repay the grower for the moderate care needed to have it in satisfactory condition.

— THERE was still another group at Tunbridge deserving of note—namely, the plants of *POINSETTIA PULCHERRIMA MAJOR* contributed by Mr. John Charlton of the Summer Vale Nurseries. This variety of a plant that is too well known and valued to require comment, differs chiefly from the type in its compact branching habit, the larger heads of bracts, and the tinge of crimson which pervades the latter. This difference of hue is very noticeable when the plants are in a bright light. The specimens sent by Mr. Charlton were also remarkable for the comparatively small pots they were in, none exceeding 6 inches in diameter, and yet the plants were as compact and healthy as could be desired. A few dozens such plants would prove of inestimable value in many gardens during November and December.

— THE EXHIBITION OF CHRYSANTHEMUMS IN FINSBURY PARK still continues, and the blooms have considerably improved in size and quality. The Show being open on Sundays is visited by numbers of persons, and from the many varieties represented it affords intending growers a good opportunity of making a selection.

— IN connection with the INTERNATIONAL HORTICULTURAL EXHIBITION proposed to take place at Manchester in 1881, a meeting was held in the Town Hall of that city on the 16th inst., the Mayor presiding. Mr. Bruce Findlay said he had received a telegram from Sir Henry Ponsonby, at Balmoral, stating that Her Majesty the Queen would patronise the proposed International Exhibition in the same manner as in 1873. The subscriptions

promised up to date were as follow:—Her Majesty the Queen, £25; Lord Derby, £100; General Horticultural Company (Limited), 100 guineas in special prizes; Lord Egerton, Lord Wilton, Sir Humphrey de Trafford, and Mr. John Rylands, £50 each; the Duke of Devonshire, Earl of Stamford and Warrington, and Mr. Joseph Broome, £25 each; Mr. Hugh Mason, M.P., £20; the Trustees of the late Duke of Bridgewater, £20; and smaller subscriptions amounting to £200, making a total of £800, which was increased to about £1000 before the close of the meeting. A resolution was passed requesting the Mayor to accept the chairmanship of the General Committee, to which he consented. An Executive Committee was appointed, and a resolution was passed to appeal to the residents of Manchester for the necessary subscriptions, and that any balance shall be applied to rebuilding the glass houses at the Botanic Gardens, Old Trafford.

— A CORRESPONDENT writes to us as follows on the FROST IN LANCASHIRE:—"Winter appears to have set-in in this county in a decided manner. For several nights the mercury of the thermometer has fallen from 10° to 14° below the freezing point, and has only risen a few degrees during the day. The ground is covered with snow to the depth of 3 or 4 inches, and the trees glitter with innumerable crystals, fogs having prevailed during the frost with but little sun. All ordinary gardening operations are suspended."

— "A VISITOR" describes Mrs. Heywood's large CONSERVATORY AT NORRIS GREEN, near Liverpool, as a "blaze of beauty." Even the Chrysanthemums, effective as they are, are quite eclipsed in brilliancy by the Zonal Pelargoniums *Vesuvius*, *Wonderful*, and some others of various sizes that are flowering as profusely as in summer, and promise to continue for an indefinite period. These, with *Celosias*, *Primulas*, *Roman Hyacinths*, *Ericas*, *Cyclamens*, *Mignonette*, *Cannas*, *Solanums*, and others, with a margin of *Isolepis*, produce a beautiful display. The many hundreds of flowers are seen to the greater advantage in contrast with the splendid specimen *Camellias* that occupy the central borders, and are in superb condition both as regards the healthiness of the foliage and the number of buds.

— A PLANT, or rather small tree, of *LUCULIA GRATISSIMA* in the structure demands special mention. This was planted about four years ago in the conservatory border, and allowed to follow its natural habit. It is now covered with numerous trusses of flowers, some of them nearly a foot in diameter. These have been produced continuously since September, and the plant will remain a striking feature of the structure, which it fills with fragrance, for some weeks to come. The condition of the plants and the arrangement are sufficient evidence of Mr. Bardney's skill and good taste.

— ONE of the finest green Hollies that can be grown in suburban, or, indeed, in any gardens, is *ILEX HODGINSII*. We have recently been inspecting the shrubs in a garden where smoke and sulphurous vapours prevail, and no varieties of Holly can exist except the one named, which grows with the greatest freedom, its large glossy leaves shining conspicuously amongst many other shrubs that are dead or dying in the borders. This fine Holly ought to be largely grown in smoky districts.

ANTHURIUM ANDREANUM.

THIS handsome plant has received considerable attention during the last few months, and we have had so many inquiries respecting it that the accompanying woodcut, for which we are indebted to the General Horticultural Company, will no doubt be welcomed by those who have not had an opportunity of seeing the plant itself. The engraving well indicates the general character of the plant, and scarcely needs any description, except in stating that the colour of the large strangely corrugated spathe is a most brilliant scarlet, the surface being smooth and shining. Like the useful and attractive *Anthurium Schertzerianum* this species is

not of difficult culture, but the plants must attain a moderate size before they will produce large and satisfactory spathes.

It is a native of New Grenada, where M. André found it growing both upon the branches of trees, particularly on *Ficus elastica*, and also in moist positions on the ground. Specimens were forwarded to M. Linden of Ghent, who subsequently exhibited it both in Belgium and England. The first plant shown in this country was submitted to the attention of the Royal Horticultural

Society's Floral Committee in April of the present year, when it was greatly admired, a first-class certificate being at once accorded for it.

THE MAGNUM BONUM POTATO AND ITS RAISER.

No Potatoe during recent years have obtained such widespread popularity as the Champion and Magnum Bonum. Their great



Fig. 86.—ANTHURIUM ANDREANUM.

vigour has enabled them to resist the disease that has been so prevalent during the past inclement seasons in a remarkable manner. These varieties have not only attracted much attention in different ways and from various causes, but they have proved of real usefulness; for in not a few instances, when all other varieties succumbed to the murrain, these remained practically unscathed, and afforded valuable and, in many cases, excellent

food. An historical reference to one Potato and its raiser having been given on pages 440 and 441, we now give the same prominence to the other. The following letter, written by the raiser of the Magnum Bonum, tells the story of a life that will not be uninteresting, and the history of a Potato that has proved its worth both for exhibition and culinary purposes:—

“I was born at Tuckton, a village about a mile to the west of

Christchurch in Hampshire, on the 1st of May, 1825. My father was a farm labourer. At the age of nine years I was sent to work on a farm in the neighbouring village of Iford, at 1s. 6d. per week. I had had but little education, and had never taken a pen in my hand. When I was twelve years of age my parents moved to the east end of Christchurch, and I then went into the service of a medical man to look after his pony and to work in the garden. After this my father, who liked gardening, was taken on as an under gardener at Sir George Rose's, Sandhills, Mudeford, and I went into the employ of Mr. Wm. Orchard, a market gardener at Christchurch. Although the wages were

small I remember with thankfulness the kindness I received from this good old man and his wife. I worked for Mr. Orchard for two years, and then obtained employment at a cornfactor's in the town, a Mr. Charles Hicks, and he being fond of his garden, and seeing that I took an interest in keeping it in order, we got on very well together. I was ten years in this place.

"In June, 1855, I went as gardener to Mr. J. Sopp, a gentleman who had a large boarding-school at Christchurch. It was there that I had my first experience with seedling Potatoes. The first season I found a root of seedlings, self-sown, amongst the crops in the garden, with thirteen tubers; I took care of them, and was



Fig. 87.—MR. JAMES CLARK.

much interested in the variety there was in the produce of this one root. One of them proved a very early round white, and I grew it for several years, but it became so subject to disease that I was obliged to discontinue growing it. While in this situation my health gave way, and I was compelled to give up the place. When I was able I went to the jobbing work, taking up pruning and the lighter parts of the work. In 1869 I removed from Christchurch to Cranemoor, where my wife undertook the care of a small chapel. In return for this we were allowed a cottage and three-quarters of an acre of land rent free. I employed the land in growing garden produce for market, and as the soil was rather stiff I grew Roses for sale, that being a work I was fond of, and one which I thought would pay. In June, 1870, I was again laid

aside with heart disease, and was so thoroughly broken down that I was told I should not be able to take any active part in life again. In the spring of 1869 I had bought 1 lb. of Early Rose Potatoes; these I cut into fifty sets, and let a neighbour have half, and planted the other half myself. The sets planted in my own garden produced 30 lbs. These I had taken to Cranemoor with me, and planted in the spring of 1870. In the month of July, in my weak state, I lifted these Early Rose a few roots at a time as best I could. It took me many days to get them all up, but the weather was very bright and dry. One day as I was quietly walking by the spot where these Potatoes had grown I picked up four little seed balls with the thought that, if spared, I might get some good sorts of Potatoes from them. The seed

was sown in April, 1871, and I had forty-two roots of seedlings, with no two roots alike, and all differing from the parent in some way or other. What the male parent was I cannot tell, as I had many sorts planted, and there were allotment gardens close by with many other varieties planted in them. I have never seen any other seed balls on Early Rose since except from blooms I have crossed myself, and from these I have not found so much variety as from those above mentioned.

"The next spring some kind friends helped to have my ground dug and planted, and as I continued weak and unable to exert myself in any way it gave me much pleasure to mark the progress and variety of these seedlings. As the season advanced the disease attacked the whole crop of Potatoes, and the haulm of all kinds went off very quickly. Not a green leaf was to be seen in field or garden except on one of my seedlings. One day a friend was walking through the garden with me, and coming to the seedlings, and seeing the green haulm, asked what Potato it was. I told him it was a seedling, and quite distinct from all other Potatoes that I knew. In 1873 it made its mark yet more distinctly, and I had rather more than a bushel of seed. When I dug them I told a brother gardener that I thought it was a Potato which in a few years' time would take a leading place in the market.

"In the spring of 1874 I discarded many of my seedlings as worthless, but found the one referred to and a few others very promising, and from these I selected six sorts, and sent them to Mr. Shirley Hibberd for trial. Mr. Hibberd wrote to say in reply that it was not his practice to take seedlings for trial, and I was not to be surprised if I heard no more of my seedlings. In the autumn, however, I received a note from Mr. Hibberd saying that he liked some of them well, and that if I wanted to sell the stock he thought he could find me a customer; at the same time he advised Messrs. Sutton of Reading to apply for the stock. In response to a note from them I took some samples to Reading, when Mr. Martin J. Sutton selected Nos. 2 and 7, and bought the stock from me. No. 7 was the seedling which from the first withstood the disease in such a marked manner, and it is now known as 'Suttons' Magnum Bonum,' a name given it by the Reading firm, to whom I sold not only the entire stock dug that year, but the right to call the Potato whatever they liked.—JAMES CLARK."

Such is the history of the Magnum Bonum and its raiser, and we trust that Mr. Clark, and the raiser of the Champion, Mr. Nicolls, will live long in the esteem of the many whom they have benefited by having been the means of supplying them with Potatoes when otherwise they would have had none. They have done what many others have done with great results—namely, made the best of small means, and have turned what numbers of people would have regarded as trivial circumstances, almost accidents, to excellent account.

MORE ABOUT BLACKBIRDS.

I AM very grateful for the accurate and specific information as to the colour of the bill of the blackbird so kindly contributed through the columns of the Journal by such authorities as Mr. Harrison Weir and Mr. Hiam.

Birds appear plentiful this season, and already, before this bitter snowy weather succeeded two or three days of exceptionally high temperature and strong sunshine, they seemed pressed for food, coming close to the house and to the window sills. Being often a prisoner in winter, my powers of observation are but limited, but I had been interested a short time back in noticing some blackbirds amongst some Rose bushes which had been protected with the usual top-dressing for the winter, and after grubbing about on the ground one or two actually perched on the standards. The following number of the Journal (Nov. 1st) contained on page 435 Mr. Hiam's interesting "Notes on Birds," and there I found described what doubtless had been the attraction to the blackbirds here, as to those which visited Mr. Hiam's Pear tree. As far as I could see none of these birds had yellow bills; but a day or two later they came again, and my attention was directed to a pert handsome bird flapping on a Privet hedge close by. He must have been a male fully developed, the bill being of a deep but most vivid golden yellow.—A. M. B.

THE METEOROLOGICAL SOCIETY.—The opening meeting of the session was held on Wednesday evening the 17th inst., at the Institution of Civil Engineers, Mr. G. J. Symons, F.R.S., President, in the chair. The following gentlemen were elected Fellows:—G. Corden, E. T. Dowson, F. Hepburn, B.A.; C. M. Hepworth, J. Mulvany, M.D., R.N.; T. H. G. Newton, Captain M. Parry, E. P. Phillips, and H. L. Roth. The papers read were—

1, "Table of Relative Humidity," by Edward E. Dymond, F.M.S. 2, "Rainfall in South Africa," by John G. Gamble, M.A., M.I.C.E., F.M.S. The author gives the monthly total rainfall from 103 stations for the thirteen months, December 1878 to December 1879, and also the monthly means from all stations in South Africa from which a record of five years upwards could be obtained. It is shown that the Cape Peninsula, the south-west and the west coast have winter rains with a dry summer, characteristics of what is called the subtropical region, the rains coming with the N.W. wind or anti-trade; while Natal, Aliwal North, and in a less degree Queenstown, have the tropical features of a wet summer and dry winter. On the south coast the rainfall appears to be more equally distributed throughout the year, though there seems to be an October maximum at Port Elizabeth and Uitenhage. In the central and northern Karroo the maximum of the very scanty rainfall occurs in February and March. These rains generally fall in thunderstorms. Each storm seems to come from a westerly direction, but it is a more or less well-ascertained fact that these rains do not fall up country until the south-easters have set in on the south and south-west coasts. In the south-east of the Colony the transition toward tropical features may be noticed, both Grahamstown and Kingwilliamstown showing a winter minimum in June. 3, "On the Meteorology of Mackay, Queensland," by Henry L. Roth. 4, "Thermometrical Observations on Board Ship," by Captain W. T. Caborne, F.M.S.

NERIUM OLEANDER.

I WAS very much interested by the remarks contained in the extract from the letter of Mr. F. W. Burbidge, Curator of the Trinity College Botanic Gardens, Dublin, sent to your correspondent "W. J. M.," on the culture of this beautiful plant in Paris. I also have often wondered why our nurserymen do not send out flowering plants in small pots as are seen in Paris, for I find the culture very easy. I always grow them in this way, and am able to raise flowering plants from 9 inches to 1 foot high even in 3-inch pots. The stock plants are allowed to grow in the open air during the summer months and ripen the wood on which the flower buds are formed. At the approach of cold weather they are brought into a vinery. In March, when the blossom buds are formed and beginning to swell, cuttings about 6 inches long are taken and inserted in bottles of water, which are plunged into cocoa-nut fibre in a stove having a bottom heat of from 80° to 85°. These cuttings produce roots very rapidly, and when these are about 1 inch long the cuttings are removed from the water and planted in the fibre. In about ten days or a fortnight they can be lifted, and the plants, with the mass of roots and fibre adhering to them, placed in 3 or 5-inch pots and again plunged into the fibre. If treated in this way the plants do not receive the slightest check from the time they leave the parent until they bloom, and when the roots fill the pots the blooms are fully expanded, and the plants can then be removed from the hotbed. In this way I have succeeded in flowering them in six to eight weeks.—THOMAS WM. COWAN, *Horsham*.

TRANSPLANTING GOOSEBERRY BUSHES.

THE timely remarks under the above heading on page 431 would be read with interest by many readers besides myself. Having a square of Gooseberry and Currant bushes in good health, covered-in with inch-mesh wire netting, a few remarks on this subject might not be out of place in the Journal. On taking charge of these gardens five years ago I at once formed a new square of young Gooseberry bushes, not liking them scattered along the sides of the walks all over the garden. Last winter they were covered-in, as the order is "Kill no birds and destroy no eggs;" so we had no Gooseberries worth speaking of till this year. The netting is supported by iron uprights, angle iron running around and across the square, bolted to the uprights—rather an expensive mode of protection, but one that will last for many years. The netting is 5 feet high, with one width sunk 3 inches in the soil around the square. We have, then, a piece of square mesh fish net to hang from the top down over the lower width of netting; this makes all secure, and by lifting the net we can enter at any point. When not needed to protect either fruit or buds the fish net is taken down and stored in a dry place. I have heard that wire netting is injurious, but my bushes have thriven exceedingly well, and retained their foliage to the last.

Caterpillars were rather troublesome at times through the season. I have found the best plan is to dust the bushes with soot and lime, or dry wood ashes mixed with either of the two. As soon as the caterpillars are touched with the mixture they drop off the branches. I do not know if they die then, but so long as I can

keep my bushes free from them in that way I shall try neither hellebore powder nor fir-tree oil. My employer told me he would rather eat a little soot or lime than risk the effects hellebore powder might produce. Another year I shall not wait for the caterpillars to make their appearance, but shall employ both soot and lime freely.

No doubt Mr. Taylor's mode of making new plantations will be found a very useful practice for those who have time and money at their disposal; but where planted as I have described other means must be found to keep them in health for many years. Large Gooseberry bushes mean a quantity of fruit, though it may be not quite so large as that on younger trees. Not one mile from here I noticed some fine Gooseberry and Currant bushes quite leafless, and the Gooseberries were only just changing colour. What will be the condition of these bushes next season?—A. J. S.

THE RECENT INTERNATIONAL POTATO EXHIBITION.

In a circular issued with his Potato catalogue Mr. William Ker of Dumfries states, in reference to the awards at the above Show, "In the class for twenty-four varieties the allocating of the first prize gave great dissatisfaction. Mr. Ker's lot were considered decidedly the best, but were disqualified on account of there being two dishes very much alike, while in reality they were quite distinct." Now Mr. Ker's collection was not disqualified, and no one knew this better than himself! One of the Judges stated to him in the presence of Mr. McKinlay that the collection was considered by them decidedly inferior to the six collections awarded prizes in the class, and the question of disqualification was never raised. It is not a little remarkable that a paragraph appeared in the *Bury St. Edmunds Free Press* a few weeks ago stating that the first prize in the leading class was awarded to Mr. Ellington of Bury St. Edmunds, who was awarded and received the second prize only.—ONE WHO KNOWS.

PLUMS FOR SUCCESSION.

BUT for Plums we should have often had a great difficulty in making up a dessert for a large party within the last two or three years. Good Pears have been few, and those few persisted in ripening one at a time, or else at a season when there was little use for them. Apples are voted common, although I am sorry to say they are far from common in reality; and as for Peaches and Apricots, why the very trees refused to exist. This season the growth is exceptionally good as far as the last two fruits are concerned, and we may reasonably hope, if the frost comes in winter instead of in spring or summer, to see once more some fruit on our south walls. Plums are never absent. Once only within the last ten years has the crop been a thin one, and even then some of the trees bore a full crop. I do not know that there is anything particular in my mode of culture, and think rather it must be that the soil and climate suit Plums, for trees of all ages between five years and forty alike bring excellent produce, and are always worth showing to visitors during the autumn season if we have nothing else to show. Standard Plums are hardly worth taking into consideration now in this locality with the exception of Damsons and Winesours, and these in some seasons cannot be saved from the birds. I much regret this, for Winesour especially is invaluable for preserving, and we must endeavour to grow it against walls in the same way as we are now obliged to grow the Kentish Cherry. I doubt, however, if trained trees of the Winesour are to be had, and I do not think this high-flavoured little Plum is known to everybody. It ripens about the same time as the Damson or a few days earlier, and I imagine would do well under exactly the same conditions. It has no equal for cooking or preserving.

The season during which Plums may be had in abundance lasts from the middle of July to the middle of November; and if good quality is studied we cannot do better than begin with Early Favourite and Early Rivers (syn. Rivers' Early Prolific) and end with Golden Drop and Late Rivers. Blue Impératrice and Ickworth Impératrice are fairly good as late Plums, but I am inclined to think that Late Rivers surpasses them. Reine Claude de Bavay is a most delicious October Plum, being in fact a large October Green Gage; but as I have only one tree of it in bearing, I have not proved its keeping capabilities. Washington on an east wall here follows closely on the heels of Mr. Rivers' two early seedlings above named, indeed I have only one other variety earlier than it, and which I think is Early Blue. Washington is the handsomest of all the Plums grown here, and is quite of good dessert quality; true, it does not always fruit as freely when trained to a wall as some varieties, but it generally has a fair crop,

and is altogether a different Plum to what it is grown as a standard. It is followed by the Green Gage, which is largely grown for cooking and preserving. The season during which the Green Gage is at its best is very short, and if it is allowed to hang on the tree, as many other Plums will after they are ripe, it becomes insipid. I therefore find it best to look them over about every other day, and gather as many as are wanted for dessert just as they become soft. The later-ripened fruits are always comparatively tasteless, and are not equal to Jefferson or Kirke's, which makes a good succession. Then we have the White Magnum Bonum or Egg Plum, which is highly esteemed for all purposes here including dessert; certainly it is not equal to Jefferson in flavour, but its beautiful appearance will always tempt anyone who is not a connoisseur, and most people are satisfied with it when they eat it. It is, however, as a culinary fruit that it particularly excels, being quite transparent when cooked and of a beautiful colour. Like the Green Gage it soon loses flavour after it is fully ripe; but some of the earlier fruit of Golden Drop is ripe by this time, and is more than a worthy successor to it. The season of Golden Drop, which is the most useful of all Plums for a private establishment, is a long one. Some fruits of it were ripe early in September, and there are now (November 18th) sufficient for a dish or two on the trees as well as in the fruit room, and the flavour is, or at least was a few days ago, as good as ever. The varieties I have named form a good succession. There are several other good Plums grown here, and there are also good ones which we do not possess in a bearing state. Among the former are Impériale de Milan, of excellent flavour and very beautiful appearance; Guthrie's Late Green, a useful successor to the Green Gage and sometimes nearly equal to it; Victoria, which never fails to produce crops in any position; and Cooper's Large.

Some of the varieties do fairly well on a north wall, where, though they do not always ripen their fruit sufficiently for dessert, it is always useful for kitchen purposes, and sometimes it will come in at a fortunate time to prevent a scarcity. The best of the varieties I have proved for this purpose are White Magnum Bonum, Golden Drop, Victoria, and Orleans.—WM. TAYLOR.

DIPLADENIA AMABILIS.

I WISH to say a few words in favour of this beautiful stove climber. I grew a small plant in a pot in ainery, which suited it very well till the Grapes commenced colouring and the ventilation was increased. At the end of a pit in a house in which I grew Melons I then enclosed a space 2 feet 6 inches long, 2 feet 4 inches wide, and 2 feet 4 inches deep, including 1 foot of drainage, and planted out the Dipladenia in good soil in March, 1877. It soon commenced flowering, and produced between three and four hundred flowers that season, making strong shoots as well. The next year, still improving, it produced 1388 flowers, and during 1879 it afforded 1811 flowers, often having as many as two hundred flowers open at once. The plant at first shared the roof with a Stephanotis, which I removed last winter, and the Dipladenia now occupies the whole of the space. The wire trellis to which it is trained is 15 feet long by 9 feet wide, and is 9 inches from the glass. Last winter being so very severe injured many of the young shoots, and some were damaged by being so much entwined. In consequence flowering did not commence till May this year, but since then the plant has never ceased producing flowers. Every day during October from 100 to 130 flowers were open together, lasting from ten to fourteen days, and now (November 14th) there are in a temperature of 50° over eighty fully expanded blooms.

My object in writing is to induce others to try it planted out. Anyone having a house in which a temperature of 45° to 50° can be maintained during the night, with a rise to 60° by day, may grow it satisfactorily. I am aware this is a much lower temperature than is generally considered necessary, but from four seasons' trial I find it quite sufficient, the flowers lasting longer during cold weather than when exposed to bright sun. No fire heat was employed during June, July, and August, the house being kept close. The Dipladenia is singularly free from insects; I have never seen green or black aphides, thrips, or scale attack it, only red spider in summer when the plant could not be syringed. Mealy bug I have not been troubled with for some years.—J. T. CREED, *Gardener to T. Swanwick, Esq., Whittington House, near Chesterfield.*

THE INCREASE OF APHIDES.—Naturalists tell us that so very rapidly can the aphides family, or plant lice class of insects, propagate themselves under favourable circumstances, that nine generations may be propagated in three months, amounting to a total of 100,000,000,000,000. To form some idea of what this

bewildering sum really means, let us suppose it possible to place them in a line and at the rate of 100 to the inch, or about 400 to the breath of one's hand. The sun is about 92,000,000 of miles from here, and this supposed line would reach it over 160 times. A man's thumb may cover a square inch, and let us suppose it covers 10,000 of these minute insects, the produce of one of which in one season might be so very great as to cover an area of 1,594,225 acres.—(*The Journal of Forestry*.)



HARDY FRUIT GARDEN.

TAKE advantage of favourable weather to push forward pruning, nailing, and tying-in wall trees; also finish planting as far as practicable. In pruning old trees, especially Apricot, Pear, and Plum trees, overgrown old and barren spurs should be gradually cut back alternately, doing a portion one year and another the next, the object being to keep the fruitful buds as close to the stems and wall as possible. The spurs so cut back will, if the tree is in good health, break at the base, and with proper attention to stopping the growths furnish buds for future bearing. It is, however, always advisable to retain if possible a portion of young wood, and so make sure of growths, as when the spurs are old they do not break freely. Apples and Pears, whether grown as espaliers, bushes, or pyramids, may be pruned with advantage, staking and tying as necessary. To make handsome and fruitful trees pyramids and bushes should be moderately thinned annually, as when hard stopping is practised during the summer the wood is apt to become crowded so much as to seriously affect the ripening of the wood, the production of fruit, and the proper maturation of the fruit if produced. Excessive thinning is not advised, as it would cause the production of useless shoots in the following season; but examining the trees annually and operating so as to prevent them becoming thickets will keep them in good order without being compelled to resort to a severe thinning, as would be necessitated by neglect for a number of years. When the pruning is completed remove the loose inert soil from about the roots and apply some fresh compost, of which a fourth may be thoroughly decomposed manure. Raspberries should now be pruned and tied, leaving about four of the strongest canes to each stool, and after tying them stop at from 4 to 5 feet height, according to the vigour of the canes or height of the stakes or trellis. Apply a good dressing of manure, merely pointing it in about the stools, but in the spaces between the rows and stools it may be buried deeper, being careful to avoid injuring the roots. Proceed with the pruning of Gooseberries and Currants, spurring the side shoots in to about three-quarters of an inch, and thinning-out where too crowded, encouraging young growths. Where Gooseberries grow freely and fruit sparingly, instead of cutting back the side shoots thin them moderately, especially such as cross each other, and this will probably result in a full crop of fruit. Black Currants should only have the old growths removed, encouraging the young shoots, which afford by far the finest fruit. If any fruit trees be infested with moss or lichen dust them thoroughly after rain with fresh-slaked lime, which will also render the buds distasteful to small birds. Bullfinches should be shot. Peach and Nectarine trees may, as soon as the leaves have fallen, be carefully untied from the walls so as to retard their flowering. Thinning the growths or removing bearing wood of the past season may also now be performed, as well as shortening any shoots necessary to originate growths for furnishing the trees. This pruning is not usually performed at this season, but is advisable, as it tends to strengthen the buds for the next crop.

FRUIT HOUSES.

Peaches and Nectarines.—Employ heat in the earliest house only to prevent the temperature from falling below 35° in the morning, but turn on the heat so as to secure a day temperature of 40° to 45° and 50° in mild weather. Ventilate freely above 50°, damping the trees and other available surfaces twice a day—in the morning and early

in the afternoon. If a bed or ridge of fermenting materials composed of three parts leaves to one of stable manure be formed inside the house it will induce the free swelling of the buds, and if turned over and fresh material added occasionally an atmosphere will be afforded highly beneficial to the trees and inimical to insects. Ventilate freely when possible, and close early in the afternoon so as to lessen the necessity for artificial heat, allowing the trees to advance gradually. Ascertain that the border is thoroughly moistened with tepid water, and in the case of old trees with weak liquid manure of the same temperature. The house where the trees are intended to be started early in the year should be cool, ventilating when the weather is mild; but in frosty weather the house may be closed, except when bright, as to keep the house shut during bright days would cause the temperature to rise excessively. Attend to the pruning and dressing of the trees in late houses, and have the houses thoroughly cleaned.

Strawberries in Pots.—A batch of plants may now be started to afford ripe fruit in late February or early March. Early free-setting and swelling varieties should be chosen, such as Pioneer, Vicomtesse Hericart de Thury, and La Grosse Sucrée, the plants being those that were layered and potted early and have formed well-developed crowns, in 5 or 6-inch pots. The drainage should be examined, and if defective rectified, decayed leaves being removed and the surface soil also, but not disturbing the roots, and giving each plant as much bone meal as can be held between the thumb and forefinger, afterwards mulching the surface of the soil with some fresh horse droppings, which will encourage the emission of rootlets. Press it down moderately firm, leaving sufficient space for watering. The pots should have the sides freed of any accumulation of moss or dirt. Place the pots on shelves not more distant from the glass than 2 feet in a house with a temperature of 40° to 45° at night and 50° in the day artificially, above which ventilate freely. The pots need not be on turves or in troughs or saucers, as the plants afford equally good results without, provided due attention is given to watering and the supply of liquid manure after the fruit is swelling. Examine the plants frequently to see that none lack water, and when required supply it liberally. Where there is no house devoted solely to forcing Strawberries they may be accommodated on shelves in an early vinery or Peach house, having the plants near the ventilators.

FLOWER GARDEN.

Roses.—Where it is intended to make new plantations preparation should be commenced at once by having the ground trenched to a depth of 2 feet, and a liberal quantity of manure incorporated. Place the manure in alternate layers with the soil, say a good layer of rather fresh manure at the bottom of the trench, then 4 inches of soil, 2 inches of manure, soil again, and so on. If the soil be light it will be greatly improved by a dressing of clay during the trenching. The clay is very retentive of moisture, and Roses are very partial to it. For stiff soils Roses on the Briar stock succeed admirably, but on light soils they are short-lived and unsatisfactory. Light warm soils may advantageously (and for beds especially) be planted with Roses on their own roots. Varieties that succeed in that way and make effective groups are *Senateur Vaisse*, *Prince Camille de Rohan*, *John Hopper*, *Général Jacqueminot*, *François Michelin*, *La France*, *Dupuy Jamain*, *Etienne Levet*, *Duchess of Edinburgh*, *Comtesse d'Oxford*, *Charles Lefebvre*, *Madame Roland*, *Maréchal Vaillant*, *Marquise de Castellane*, *Baronne de Maynard*, *Capitaine Christy*, *Baronne de Rothschild*, *Madame Lacharme*, *Princess Beatrice*, *Thomas Mills*, and *Thomas Methven*. Roses on the *Manetti* stock also succeed on light soils if well mulched during growth. Roses that are not thriving satisfactorily should be lifted and the ground trenched and well manured. If they have been long in the same position add some fresh soil, and after trimming in any straggling roots replant carefully, spreading out the roots, making the soil firm, and mulching with long manure for the winter. The growths must be well thinned out and cut moderately hard back in spring.

The leaves of deciduous trees and shrubs having fallen shrubbery borders should be cleaned, and where pointing them over without injury to the roots can be performed it may be practised, which will have an invigorating tendency, but where the roots are near the surface a top-dressing of thoroughly reduced material from the

rubbish heap will be beneficial. The spaces between shrubs should be occupied with low-growing spring-flowering bulbous and herbaceous plants. Tender plants will usually winter safely if they are afforded a good mulching over the roots, 4 to 6 inches depth of cocoa-nut fibre refuse being very effectual.

Herbaceous borders requiring re-arrangement should be attended to at once, weather permitting, taking advantage of the opportunity to give the ground a liberal dressing of enriching material, and to turn it over to as great a depth as the good soil admits. If after transplanting or re-arrangement a mulching is given of cocoa-nut fibre refuse it will tend to their better re-establishment. Clear away all dead stems, &c., renew pegs and labels as required, afford a dressing of some enriching substance, and neatly fork over the borders.

PLANT HOUSES.

Greenhouse.—Undue excitement at this time of year is often a cause of the buds of Camellias falling. The necessity of fires to expel damp and keep out frost frequently results in too high a temperature being maintained. An ordinary greenhouse should be kept at 40° to 45° by day artificially in severe weather and 40° at night. The plants are quite safe provided the temperature does not fall below 35°. Ventilation should commence when the sun raises the temperature above 45°. Watering must be done in the morning, and though lessened supplies will be necessary the plants can be examined at least every other day.

Liliums.—These should be potted before they begin forming fresh roots—indeed, some are never entirely dormant. The earliest *L. auratum* and *L. longiflorum* will be fast pushing fibrous roots, and must not be disturbed; but if in pots already large enough merely remove the surface soil and dress with fresh, seeing that the drainage is in good order, but in case the pots are too small transfer to larger without disturbing the roots. Both these *Liliums* are impatient of drought at the roots, but it is essential that the soil be not made and kept very wet. *L. speciosum* (*lancifolium*) vars. should also be repotted, and have the soil moist, keeping them where they will be cool but safe from frost. Turfy loam chopped up moderately small, a sprinkling of sand, and enriched with a fourth of leaf soil or thoroughly decomposed manure, will suit them well, draining the pots and leaving space in the pots for top-dressing after the plants have formed fresh shoots.

TRADE CATALOGUES RECEIVED.

James Dickson & Sons, Newton Nurseries, Chester.—*Catalogue of Forest Trees and Shrubs.*

Kelway & Son, Langport, Somerset.—*Catalogue of Gladioli.*

Thomas S. Ware, Hale Farm Nurseries, Tottenham, London.—*Catalogue of Trees and Shrubs, and Choice Bulbs.*

Cranston's Nursery and Seed Company, Limited, King's Acre, Hereford.—*List of Trees and Shrubs.*



* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Book (*A Young Gardener*).—Thompson's "Gardener's Assistant" is published by Messrs. Blackie & Son, Paternoster Buildings, London, and at Glasgow and Edinburgh. The last edition was edited by Mr. Thomas Moore.

Japanese Names (*A. P.*).—We know of none that approach to the English names of plants. *Ebui* is synonymous with our *Flower*; *kina* is grass; and *shinrichi* a root.

Cucumber (*Stephen Castle*).—The fruit you have sent is an excellent one for this season of the year, and is of superior quality. It testifies to the soundness of your culture, described on page 369.

"Herefordshire Pomona" (*A. F.*).—In our reply last week an error occurs relative to the price of this work. The first part only is 15s., the other two are 21s. each.

Stocks for Apples (*Holynell*).—The best stock for standards is the Crab, and for dwarfs the Paradise. There are several varieties of the Paradise stock, Rivers' Broad-leaved being a very good one, so is the Nonsuch. The French Paradise is a weak grower, and short-lived in many soils.

Stove Heating (*W. H. W.*).—We do not think that an ordinary-sized stove would heat the flue sufficiently for affording the requisite bottom heat for Cucumbers early in the season; but a large stove would doubtless afford heat that would be useful in the manner indicated, the flue being made with sanitary pipes.

Vine Roots Unhealthy (*W. M.*).—There are no traces of Phylloxera upon the roots you sent, and probably the chief cause of their unhealthy appearance is that the soil is too heavy, at least such seems to be the case with soil enclosed in the bottle. You give us no particulars as to the position of the house or the general condition of the Vines, and consequently we are unable to reply more explicitly. Renewing and well draining the border would no doubt improve the health of the Vines.

Preparing Ground for Roses (*Student*).—Trench the ground at once 2 feet deep, bringing some of the lighter soil to the top, and mix it with the surface soil, which you say is very stiff. Digging now cannot make it more adhesive, but exposure to frost will pulverise it, and you may make it more friable by adding sand. In trenching throw it into ridges, and as roughly as possible, so as to expose it to frost. If you cannot obtain sand, ashes will answer the purpose of making it more open.

Stopping Ficus elastica (*Clifton*).—You may take out the point of the shoot without injury to the plant, only you will spoil its appearance, as buds will start from the lower joints. Why not wait until spring? then take off the top with a couple of joints and the growing point, and if inserted in sandy soil it will strike freely in a hotbed. Cut the stem off two or three eyes from the soil, and the lower part will break freely and soon become furnished with fresh foliage. Every eye taken off with a portion of wood and its accompanying leaf will strike freely in bottom heat.

Moss on Gooseberry and Currant Bushes (*Oscar*).—It would be desirable to remove the moss, and you should do so at once, and, after scraping off all you can take off the soil round each bush as low as the roots, but without injuring them, replace it with about four good spadefuls of manure, and then cover the manure with the soil removed, or part of it, not burying the stem too deeply. You may then wait until the first rain, and whilst the bushes are wet dust them thoroughly in every part with fresh-slaked lime. It will destroy the moss, and be less tedious of application than washing them with lime and soot. The lime-dusting may be repeated early in spring before the buds open.

Zonal Pelargoniums for Winter (*E. B.*).—The plants require to be grown well through the summer in cold frames with the lights drawn off during all favourable weather, so that the growth is sturdy. The shoots may be topped till August, and after that time the flower buds should be removed as they appear until October. They must be grown generously and the roots be always active. As the autumn approaches they must be placed in a very light position in a house having a temperature of 45° to 50°, with as much air as the outside temperature permits. By giving them liquid manure occasionally they will flower all the winter in a suitable structure.

Potatoes and Popery (*Curio*).—Prejudices have usually accompanied new introductions, but we do not remember the singular connection of "Potatoes and Popery" being alluded to, except in the following manner in Roberts's "Social History of the People of the Southern Counties of England"—"Potatoes were a luxury until 1765, when Lord Sheffield bought some, and soon after farmers began to plant them in the fields. This novelty experienced the usual fate—viz., that of exciting prejudice against it. At an election at Lewes Potatoes shared with popery the indignation of the people, and "No Popery! No Potatoes!" was the popular cry. Potatoes excited so much prejudice in France, from a belief they would bring back leprosy once more, that the growing crop required to be watched for protection."

Euonymus europæus (*J. R. P.*).—The specimen sent is the fruit of the Common Spindle Tree (*Euonymus europæus*), so called from its wood being used long ago for making spindles. It is called Prickwood and Prick-timber, from being used for toothpicks and skewers. The wood is said to be used by musical instrument makers. For skewers and toothpicks the wood should be cut when the shrub is in bloom, for then it is tough and not easily broken; it is also used by watchmakers for cleaning watches. The berries act as an emetic and purgative, and are fatal to sheep; and when powdered and sprinkled on the hair destroy pediculi; sometimes it is made into an ointment for the same purpose. No animals except the goat will browse upon the plant. It is surprising how few persons know this plant, as we very frequently receive specimens to name.

Shading Conservatory (*W. C.*).—What you can need a permanent shading for is inexplicable, as except during the summer months when the sun is powerful shading is not only unnecessary, but from September to April absolutely injurious. Indeed the necessity of affording light during the autumn, winter, and spring months induces gardeners to cut away the strong-growing roof climbers considerably to admit as much light as possible to the plants beneath. Within the time indicated plants, flowering or otherwise, cannot have too much light, and instead of being shaded they should have the roof and side lights thoroughly cleaned to admit of every ray of light possible passing through the glass for the benefit of the plant. Perforated zinc is much too dense a shading at any time, even for shade-loving plants. Summer cloud answers very well, and so does whitewash, and if placed on the inside of the glass will last a season. It can easily be washed off; it costs little beyond the trouble, and is not objectionable in appearance.

Propagating Erica mediterranea (*J. Surrey*).—Take cuttings of the young shoots when their bases are rather firm, stripping off the leaves from half the length of the cutting, and paring its base smooth, insert them round the sides of a pot. The pot should be filled half its depth with drainage and a little rough peat, and then to within three-quarters of an inch of the rim with very fine sandy peat, the whole being covered up to the rim with silver sand; water gently and press firm. After standing a few hours insert the cuttings, and place them in a cold house or pit covered with a hand or bellglass. Keep them close and moist, shading so as to lessen the necessity for watering; and when the cuttings have struck, as you may know by their growing, admit air gradually. Pot them off when well hardened, and keep them in a cool house or pit over the winter, planting out in the spring. They may also be wintered in the cutting-pots, and planted out in spring after being well hardened.

Forming Pyramid Cherry Trees (*D. Wilson*).—Commencing with a maiden plant, the head should be taken off at 13 inches above the point of union of the graft and stock. This will cause the production of side shoots, the uppermost of which is to be trained as a leader, and all the others should have their points taken out as soon as they have made six leaves, commencing with the strongest and ending with the weakest; when the shoots push again take out their points at the third leaf. The leader may be stopped when it has grown 12 inches, and it will push one or more shoots. One is to be trained as a leader, and the others should have their points taken out at the third leaf. In winter the leader should be cut back to within about 15 inches of the last stopping, and any of the side shoots that are irregular may be shortened so as to have the tree widest at bottom and gradually tapering upwards. As respects the leader the treatment is the same in the following year, and afterwards, until the desired height of tree is attained, and the side shoots are allowed to make shoots with six leaves; then take out their points, keeping them closely pinched-in afterwards to one or two leaves. Care must be taken to stop so as to form a perfect cone or pyramid, encouraging the shoots in the hollow places, and not stopping them until they are of equal length with the others, and when they are too prominent pinch more closely.

Dendrobium formosum (*J. Mason*).—It succeeds admirably as a pot plant like most others of the same genus. The pots are filled to two-thirds of their depths with crocks, over which should be placed a mixture of chopped sphagnum, fibrous peat, lumps of charcoal, and a little silver sand, with crocks, the whole compressed firmly and rising well above the rim. Let the roots of the plant alone be covered with the compost, when it is as much at home as if it were growing on the trunk of a tree. Being a native of Nepal and Monmeim it does not require a very high temperature, and will, indeed, grow in a warm vinery—an admirable place for a great number of Orchids. If the plant is in good health and in good growth, place it in a house with a temperature of 45° to 50°, and from now until March give only a sprinkling of water betimes to keep the pseudo-bulb from shrivelling up. In March you may put it in a vinery with a temperature of from 50° to 55°, increasing in a few weeks to 60° at night, and also sprinkle it overhead every morning for the first fortnight, when it will start into flower and afterwards into new growth. It should now be encouraged with moisture to make a good growth, and on that being completed and the pseudo-bulbs being firm, keep it dry and moderately warm, but try to obtain a complete maturation by exposure to light and air.

Maréchal Niel Rose Cankering (*J. P.*).—We have seen it canker both on the Briar and Manetti stocks, and it does not always grow freely on its own roots. Relative to a stock for this Rose a correspondent communicated the following note last January:—"I have seen this beautiful Rose grown on many different stocks, such as the *Félicité Perpetue*, *Margottin*, seedling Briar, *Gloire de Dijon*, and several others, but the *De la Griffierie* stands first in my estimation. I have seen the *Maréchal* on this stock throw up shoots 8 to 10 feet long, and as for cankering I have no reason to think it will do so. The buds are so firmly united to the stock that it is a difficult matter to pull them out. In looking over Messrs. Wm. Paul & Son's nurseries at Waltham Cross I observed hundreds of *Maréchals* on the *De la Griffierie* stock, and it was astonishing to see the growth they had made in one year—three or four shoots 6 to 8 feet long. I noticed also such varieties as *Gloire de Dijon*, *Climbing Devoniensis*, *Belle Lyonnaise*, *Madame Berard*, *Mlle. Marie Berton*, and *Cloth of Gold* growing on this stock with remarkable vigour. I strongly advise all who find it difficult to grow this king of Roses to give it a trial on the above-mentioned stock, and I am sure they will be well rewarded for their trouble." If the plants are budded on the Manetti the buds should be inserted close to the roots, and the plants will speedily be on their own roots. We have recently seen some *Maréchal Niel* Roses raised from cuttings that have produced growths 20 feet long this year.

Names of Fruit (*E. K.*).—1, Uvedale's St. Germain; 2, Chammontel; 3, Benrre Del; 4, Thompson's; 5, Comte de Lamy; 6, Duck's Bill Apple. (*J. B. D.*).—1, Winter Greening; 2, not known; 3, Northern Greening; 4, Tom Putt. (*John Laing & Co.*).—1, Herefordshire Beefing; 4, Leathercoat; 7, Blenheim Pippin; 8, Royal Russet; 11, Surrey Flat Cap; 15, Beauty of Kent. (*Conyngham*).—1, *Maréchal de Cour*; 2, *Millot de Nancy*; 3, not known. (*H. P. C.*).—*Triomphe de Jodoigne*. (*G. B. C. W.*).—*Alfriston* is a large green Apple traced all over with lines of russet. The specimens you sent are Beauty of Kent. (*Henry Smale*).—*Apples*.—2, *Calville Blanche*; 3, *Pearson's Plate*. *Pears*.—4, *Beurré de Jonghe*; 6, *Benrre d'Arenberg*. A large decayed Pear, delivered by the Great Western Railway, is King Edward's Pear. We have no name of the sender. (*R. H.*).—*Nouveau Poiteau*. (*H. W.*).—The Grapes were so shaken in transit and crushed as to be quite beyond identification. Grapes cannot be named unless fair representative bunches are sent and arrive in good condition.

Names of Plants (*S. T.*).—*Adiantum macrophyllum*. (*E. D. S.*).—We fail to recognise the plant sent, as the flowers were completely withered; it appears to be a Liliaceous plant. (*R. T.*).—*Meyenia erecta*. (*J. R. Pearson*).—*Euonymus europæus*.



POULTRY, PIGEON, AND BEE CHRONICLE.

BREEDS OF CATTLE ADAPTED FOR DAIRY FARMING.

(Continued from page 470.)

HAVING previously noticed the different breeds of cattle as pure-bred stock, we must now allude to the cross-bred cows exhibited at the late Dairy Show. It is very useful and important to notice the effect of crossing or mixing the different breeds of cows intended for dairy purposes and their progeny, and we think that in

such a class the breed of animals upon which the cross is based ought not only to be stated but certified, in order that the home farmer and others may be taught thereby in their breeding of dairy cattle. Unless this is done there is frequently such an affinity to one breed or the other that the animals appear to a superficial observer to be pure-bred instead of cross-bred, as was the case this year with a fine roan cow exhibited as cross-bred, which would really have passed muster as a Shorthorn, not eligible as pedigree stock. It will therefore be readily understood that the animals should be specifically named as a cross between such and such pure breeds. It is further a well-known fact to experienced men that it is not necessary to have a pure-bred animal of any breed to insure a first-class milker, because excellent milking stock is to be obtained under numerous strains. The chief variation appertaining to particular breeds is to obtain quality of the milk, and when this and quantity can be combined in one animal we have an example worth imitation, no matter what the origin may be, but it is this fact which renders it desirable that the origin both of sire and dam should be certified.

We must fall back upon our own experience and that of some of the most intelligent of cattle breeders to explain fairly the difficult task of combining quality and quantity of milk with correctness of form of the animals. In our case we have never been enabled to obtain such a combination as we have named in a cross between the Shorthorn and Jersey, especially if the sire was of the former breed. If, however, the Jersey bull is used for the Shorthorned cow the result will be better; but even in such case we have never succeeded to our satisfaction, in consequence of the stock being so small, light, and various. On the other hand, when we have used the Guernsey bull for the Shorthorned cow, and both coming of good milking strains, we have been well satisfied, and have certainly possessed some of the finest milking dairy cows we have ever seen, both as great milkers and yielding rich cream adapted for making butter of the finest quality, and at the same time milk for making superior cheese, without the necessity of using "annatto" for the purpose of colouring the goods. This colouring used to be considered of much more consequence by the London cheesefactors twenty or thirty years ago than at present, hence the necessity of using "annatto" for the purpose, as shown by the fact that in 1858 £2000 per year was paid for this article in the county of Cheshire alone. There is no danger in using this deleterious substance so long as it is properly mixed in moderate quantities in the cheese, but when used by the ignorant it has often proved damaging to the quality of cheese, if not injurious to the health of the consumer. It will therefore be readily admitted how very desirable it is to have the cheese coloured by the supply of milk of high colour and rich quality, so that the fashion of the London cheesefactor may be met, and at the same time an article of the richest possible quality may be available for the consumer, who is always willing to pay a good price for a superior cheese.

It is notorious that to the dairymen of Bucks, Derbyshire, Salop, and the west of England the graziers of the eastern counties are indebted for many of the cross-bred animals met with, for they look out for the cow that gives the most milk or butter, or promises to make the greatest quantity of cheese, quite regardless of her origin; nor in many cases are they much more careful as to the pedigree of the bulls, in consequence of their selling the calf at a few days old. There is, however, now a growing desire among them to use a well-bred bull, whereby they will much improve the produce, especially where they intend to rear heifer calves to keep up the stock, because a well-bred bull from a good milking family will soon alter the appearance of the herd. We find an instance worth recording in a statement made by Mr. J. Coleman, farm steward to the Duke of Bedford at Woburn Abbey,

in 1862, where a herd of from thirty to forty pure Hereford cows were kept, and still a large quantity of milk and butter required. He says, "I have found it quite impossible to improve the herd in milking and fattening or flesh-producing qualities at the same time, and had often to sacrifice a very fine cow because she gave no milk, or others that were good milkers but unfit to breed a show ox. Finding out, then, that it was almost impossible to unite the truth of form and aptitude to fatten, according to our present standard with a profitable dairy, I thought it desirable to keep two herds—one for breeding purposes (the dams only rearing their own calves), and the other for dairy purposes. I have been often asked if I would go in any farther than the first cross between two distinct breeds. I think it best not to do so, as I have always found the produce of the cross-bred cow to be very inferior to herself." As we have distinctly advocated a cross-bred animal between the Shorthorn and Guernsey, we desire to say that it is chiefly for butter-making and milking, but not always for cheese-making, as on some soils the produce may be too rich in cream, and if it is found to be so the course is then open to use a proportion of Guernsey cows, say 20 to 25 per cent., for the purpose only of colouring the cheese. We have not yet obtained Dr. Voelcker's analysis of the milk yielded by cows at the late Dairy Show, and cannot give it this week, as we intended.

GOATS.—We must now refer to another phase of the late Dairy Show—viz., the exhibition of goats, as stock calculated for the production of milk. Until recently goat-keeping in this country has been a very small and insignificant affair. It has now, however, assumed large proportions through the formation of a Goat Society and so many shows having been held during the past six or seven years, with prizes awarded for the animals best adapted for milking purposes, fancy animals only having previously attracted notice. The propagation of goats will now no doubt settle down into the breeding of those best adapted for yielding the most and the best quality of milk; and as the animals become more generally kept, especially by persons residing in the suburban districts of the metropolis and other large towns, the selection and crossing of the various breeds will no doubt rapidly advance in the direction we have indicated. In those cases where a small quantity of pasture or even ornamental land is held no doubt the goat will gain a footing where the desire to keep a cow has been out of the question, and it must be remembered these animals will live partly upon the trimmings of vegetables of almost any kind, and by judicious feeding with bran and other substances added to refuse vegetables of the garden the latter will be turned to better account than by keeping swine only for that purpose. There has been, however, one matter operating against goat-keeping—the unpleasant odour which attaches to the male animal. This objection, however, will be met by the crossing or using male animals which are entirely devoid of the drawback, which is the case with the Angora male, a variety imported from the Cape for the purpose of crossing with our present stocks, which will in all probability result in the diminution of the existing objection, and by special methods of selecting the animals for crossing may ultimately be removed entirely. It appears to us that it would be best to select animals without horns if they can be found to possess equal advantages of milking, &c., with the horned varieties. At the late Dairy Show, for instance, in the Polled class there were eleven entries, and the competition very keen. The first prize was awarded to Mr. J. Arnold's Brown Kate, carrying a splendid udder with long teats, capable of being easily handled. This we deem a very important point in the future breeding of animals for dairy purposes, and will no doubt lead to crossing between such varieties as will eventually furnish us with animals which now only exist in our imaginations and aspirations. The varieties of goats are more numerous than may be supposed, and as the interest in keeping them increases it will become more instructive to inquire into the capacity of each breed to answer our purposes for milking as well as the flesh for consumption, for certain breeds are certainly under proper feeding, &c., capable of yielding meat equal if not superior to much of the mutton consumed in this country. Now, as we shall not have sufficient space in this article to elucidate all matters relating to the goat tribe we hope on a future occasion to make it a special subject, but now only to name some of the best varieties. These consist of the Angora, Cashmere, Nubian or Egyptian, the Maltese, and others. The largest Angora males will sometimes yield a fleece of mohair, weighing as much as 12 or 15 lbs., of considerable value. The flesh, too, closely resembles mutton, whilst its milk, though less in quantity than some other varieties, is much richer. The Nubian is a breed much esteemed in France, and is an extraordinary milker, the cross-bred stock yielding on the average six and a quarter pints per day, whilst the pure breed yield eight pints per day. The Maltese are good milkers and

extremely docile, it being the custom in Malta for the animals to be driven in small herds through the streets and milked at the doors of the houses, before which they stop as regularly of their own accord as the butcher-boy's horse does here when calling for orders. Milking these animals is always performed from the rear, which with their long narrow udders is much more convenient, and it is imagined by some fanciers that a cross would be desirable between the Nubian and Maltese varieties. In conclusion we will give the comparative analysis between cows' and goats' milk, by Dr. Voelcker, in 1879.

In the month of July, from a Cow of Sir H. Dashwood's, Kirtlington Park, Oxon.
 " from a Goat without horns, five years old, of Mr. Stephen
 Dickens', Holloway Road, N.

COMPOSITION OF MILK FROM	THE COW.	THE GOAT.
Water.....	86.85	83.51
Pure Butter Fat	3.80	7.34
Caseine (curd)	3.00	3.19
Milk Sugar	5.56	5.19
Mineral Matter (Ash)	0.73	0.77
	100.00	100.00

WORK ON THE HOME FARM.

Horse Labour.—On those farms where the Wheat has been all sown the winter fallowing for Barley or roots next spring will be necessary—that is to say, the deep ploughing for the land to lie high and dry during the winter months. Before this deep ploughing is done it is necessary that the lumps of couch upon the autumn-fallowed land should be lifted off the surface by the use of Howard's patent self-lifting drag, in order that it may be forked or raked together and carted away, for burning in the field is seldom practicable in the month of November. This is best done before the deep fallow-ploughing takes place. On the stubbles which come in course for Barley or roots there is often only a few bunches of couch to be seen, but these should be forked out before ploughing the land for a winter fallow, as the farmer must remember the first cost in removal of couch is always the least. Some farmers say such a small quantity of couch will work out during the spring ploughings, &c., but this is just the point to which we wish to call attention by asking, Are these spring ploughings required if the land is clean? We say No, and that as a preparation for either Barley or roots the less the land is ploughed in the spring the better. The past seedtime for Mangolds illustrates this in a remarkable manner, for where the land was ploughed at the seedtime, the weather being so dry afterwards, the seed did not vegetate well; whereas the land which was spring-tilled with the scarifier only lost no moisture and the plants came well together, resulting in a splendid crop of roots. This is the time of year when earth from the farm roadsides should be carted to heap, and from the highways and parish roads much valuable earth may be stored away for future use in cattle boxes, horse boxes, pig pens, &c.; in fact, wherever animals are accommodated under cover earth should always be placed under them, for the double purpose of ensuring their health and the production of manure.

Hand Labour.—Some men and women will be engaged in forking out couch and collecting it on the fallows after they have finished the work of taking up and storing the root crops, or by pitting them in small heaps in the field for use in the spring. This latter plan answers admirably, as a crop of roots cannot be allowed to remain in the land during the winter months owing to the attacks of game or wood Pigeons; besides, the roots are sure to lose quality by remaining in the land until the spring.

At this time of year all the breeding flocks of ewes will be in a more or less advanced state of pregnancy, and it is only right they should receive moderate and regular feeding, especially of roots, but of good old lea grass if possible, with a constant change of pasture which is necessary, not only as a food question, but likewise on account of the health of the animals, moderate exercise being essential for all breeding stock. Swine of all ages will require special attention now, not only in feeding but in the littering of well-arranged pens. This, however, applies more particularly to farrows of little pigs and to fattening pigs. The breeding sows we find are best cared for when they have a sheltered hovel to lie in, with a run at daytime in a well-arranged farmyard or a paddock, where they may receive the usual trough food and roots *ad libitum* strewn over the yards. Fattening pigs we have always found will yield most profit when they are fed with pulped roots and meal. The meal should be mixed with a large portion of roots at first and gradually diminishing the quantity, giving meal only at the completion of the period of fattening. The meal used may be either of Maize or Barley, with a portion of bean or pea meal. This latter addition will yield more flesh in proportion to the fat, making the meat more valuable to the butcher and consumer. It must not, however, be forgotten that the price of the meal should regulate the proportion in which it is used.

In noticing the pastures in general, we see many bunches and patches of grass which have been refused by the cattle up to this time, but in order to induce them to eat it during the winter months the best plan is to give a liberal dressing of salt strewed on the

bunches and patches of the sourest grass. The cattle will not only eat it with relish but it will be far more nutritious for them, either young stock or dairy cows, but especially the latter.

In many districts the dairy cows will be maintained almost entirely in their stalls and pens, and will be dependent chiefly upon roots, hay, and cake. We think that the time and manner of feeding is of great consequence, and that roots and cake meal should be given immediately after milking, and a full allowance of water just before milking. Roots such as Swedes will sometimes impart a flavour to the milk and butter; the feeding just after milking avoids this to a great extent. The cattle of different ages now feeding under cover should receive common Turnips, then hybrid yellow Turnips, and Swedes in succession. At any change of food, however, it is a good plan to mix the roots before any decided change is made, as the cattle will not only eat them better but are not so likely to scour them, as any sudden change frequently does. Carrots and Carrot greens are both valuable; the latter should never be wasted, but given to young cattle. Calves and yearlings will do better with these than when eating Turnips, &c. Cabbage is, however, best for them, but whilst the digging and lifting of Carrots is going on the greens should be used daily as fast as they are available. Farm horses should have a good allowance of Carrots, for much hard work is yet to be accomplished before the dead portion of winter work arrives. About 12 or 15 lbs. of roots given twice daily will be sufficient, with Oats or drege and hay, for horses will always prove more healthy if fed on a moderate allowance of roots throughout the winter.

CRYSTAL PALACE POULTRY SHOW.

(Continued from page 472.)

Spanish curiously enough numbered the same as last year—forty-two pens in all. They were good even classes, but the old birds, especially the hens, were hardly through their moult. Old cocks were only five. First was a little rough in quality of face and had a slightly drooping comb. Second was better in both these points, but a trifle close in eye; we preferred him to the first. Third had the largest face and lobe of any, but rough. In hens (six) all three winning birds were throughout of good quality, somewhat shrunken in face and comb through moult. 779 (Le Sueur) although small should, we thought, have won on account of her splendid condition and flat rounded lobe. In cockerels (seventeen) the winner also took the cup for male birds. He is grand in size and shape, a nice face and long carlobe, both of good quality; comb not quite straight—an easy win. Second large, but with a fold in earlobe and rather rough in face. Third, nice smooth face and lobe, and very perfect comb, 786 (Dixon), highly commended, very long but not broad enough in lobe. The class contained several other good birds. Pullets (twelve), the winner here took the cup for hens or pullets; we did not fancy her so much as second. Her face was uneven over the eyes, and there was a fold in each earlobe. Second had a nice smooth face and large rounded earlobes. Third had a face small but good; she failed in body. 805 (Mills), very highly commended, we much liked; her face was one of the largest and best laid on in the class.

Leghorns were shown in four classes, old and young competing together. They numbered forty-six as against sixty last year. The greater part of the falling-off was in the Whites. Brown cocks (fourteen) were a nice class. The winner splendid in shape and very rich in colour, but with an enormous comb and not quite clear in lobe. Second very smart in carriage and well striped in hackle; comb smaller than first, but still coarse. Third was in magnificent bloom, his colour rather dark but brilliant, best in comb and clear in lobe. All three winners were birds of the year. Brown hens (fifteen).—The prizes here also went to chickens. First was good in lobe, shape, and colour; second not so good in lobe and too dark in colour, but larger; third in the best condition of the three, but too brown. Rest of class moderate. White cocks (ten).—First and Leghorn cup a neat shaped bird, good in comb, moderate in lobe, but seemed to us, in the failing light in which we saw him, to be rather yellow. Second was a good one but for an imperfectly closed beak. Third long and rather slim in body, but very even in comb; this, however, was set on too low at back. White hens (eight) were not remarkable as a class. First and second nice pullets, the former winning by condition; third a good hen.

Andalusians were by themselves this year, the Minorcas being relegated back to the variety class (why, we don't know). They numbered thirty-seven as against forty-two of both breeds last time. The cocks (seventeen) were a very fair lot, nearly all being of this year. The winner, who also took the cup, was good in size and pencillings but rather rough in comb and stained on lobe. His hackle feathers were of the medium colour. Second darker in colour, pale in face, and rather loose in comb, but in prime condition. Third medium colour again, face pale and comb folded in front, otherwise of the right sort. The hens were a strong class of twenty. First an old bird of the light shade nicely pencilled. Second another good one of similar type. Third smaller and rather cloudy in colour. 1448 (Wilson), very highly commended, a good one out of show form.

We append the complete prize list; we regret that our reporter's notes on the Pigeons arrived too late for insertion.

POULTRY.

DORKINGS.—*Colour d.*—Cock.—1, L. Pilkington. 2, J. Collins. 3, R. W. Beachey. Hen.—1 and Cup, J. Taylor. 2, P. Ogilvie. 3, B. Smith. 4, Mrs. Gunn. *vhc*, F.

Parlett. *Cockerel*.—1 and Cup, A. E. W. Darby. 2 and 3, J. A. & M. F. Smyth. 4, E. Barker. 5, W. H. King. *vhc*, B. Smith. R. W. Beachey. L. Pilkington. W. H. King. *Pullet*.—1 and Cup, O. E. Cresswell. 2, B. Smith. 3, W. H. King. 4, Earl of Winterton. 5 and *vhc*, J. A. & M. F. Smyth. *Silver-Grey*.—Cock.—1 and Cup, B. Smith. 2, P. Ogilvie. 3, Miss Pasley. *vhc*, Miss A. Peel. Hen.—1, Mrs. Radclyffe. 2, P. Ogilvie. 3, B. Smith. *Cockerel*.—1 and Cup, O. E. Cresswell. 2, J. Cranston. 3, F. Cheesman. *Pullet*.—1, J. Cranston. 2, O. E. Cresswell. 3, P. Ogilvie. *vhc*, Mrs. Wachter. G. Haddock. *Blue or Cuckoo*.—1, P. Roffey. 2, Countess of Dartmouth. 3, W. Virgo. *White*.—Cock.—1 and Cup, Mrs. M. A. Hayne. 2, J. E. Pilkington. 3 and *vhc*, Rev. R. S. S. Woodgate. Hen.—1, W. Badger. 2, A. H. Longman. 3, Rev. F. Pearle. *vhc*, Rev. R. S. S. Woodgate. *Any variety*.—1, C. Cork. 2, W. Virgo. 3, Earl of Winterton. 4, H. Stephens.

COCHINS.—*Cinnamon or Buff*.—Cock.—1, H. Lingwood. 2, G. H. Proctor. 3, C. Brown. *vhc*, C. Brown. W. Wright. Hen.—1 and Cup, H. Tomlinson. 2, C. Brown. 3, Mrs. T. Pyc. *vhc*, C. Bloodworth (2). *Cockerel*.—1 and Cup, A. E. M. Darby. 2, H. Tomlinson. 3, D. Bragg. 4, Mrs. Davidson. *vhc*, C. Brown. J. Hine. H. Tomlinson. G. H. Proctor. *Pullet*.—1, H. Lingwood. 2, C. Brown. 3, C. Bloodworth. 4, Mrs. Davidson. *vhc*, Mrs. Davidson. A. J. E. Swindell. Mrs. W. Paxon. G. H. Proctor. C. Bloodworth. Mrs. Lang. *Partridge*.—Cock.—1 and Cup, R. P. Percival. 2 and 3, R. J. Wood. *vhc*, J. Turner. Hen.—1, E. Tudman. 2, R. Southern. 3, R. P. Percival. *vhc*, R. J. Wood. *Cockerel*.—1, Rev. E. H. Morgan. 2, F. Nettlefold. 3, C. Sidgwick. *vhc*, T. C. Morris. J. Turner. *Pullet*.—1 and 3, R. J. Wood. 2, F. Nettlefold. *vhc*, T. Sharpe. J. Collins. R. Southern. W. W. Rutledge. R. J. Wood. *White*.—Cock.—1, R. P. Percival. 2, H. Tomlinson. 3, C. Thompson. Hen.—1 and Cup, R. P. Percival. 2, G. H. Wood. 3, J. Turner. *vhc*, C. Thompson. *Cockerel*.—1 and 2, A. E. W. Darby. 3, J. Turner. *Pullet*.—1 and 2, A. E. W. Darby. 3, G. H. Wood. *Black or Langshan*.—Cock.—1, G. H. Proctor. 2, A. E. W. Darby. 3, Mrs. J. T. Holmes. Hen.—1, J. Turner. 2, A. E. W. Darby. 3, T. Aspiden. *Cockerel*.—1, Cup, and 2, W. Badger. 3, A. E. W. Darby. *Pullet*.—1 and 2, A. E. W. Darby. 3, H. J. Storer. *Any variety*.—1, C. Brown. 2, C. Sidgwick. 3, R. P. Percival. 4, R. R. Fowler & Co. *vhc*, A. E. W. Darby, Cockroft & Ashby, Lady Gwydyr.

BRAHMAS.—*Dark*.—Cock.—1 and Cup, Rev. G. W. Joyce. 2, L. C. C. R. Norris. 3, C. Tindall. 4, T. Aspiden. *vhc*, A. Comyns, jun.; E. Kendrick, jun.; L. C. C. R. Norris. Hen.—1, Miss E. Cotes. 2 and 3, R. P. Percival. 4, T. Sharpe. *vhc*, Rev. T. C. Peake. E. Kendrick, jun. *Cockerel*.—1, Cup, 2, 3, and 4, H. Lingwood. 5, R. P. Percival. 6, A. Comyns, jun. 7, Miss E. Russell. *vhc*, A. Comyns, jun.; A. Kendrick, jun. (2); — Bennett, Miss E. Russell. *Pullet*.—1 and Cup, L. C. C. R. Norris. 2, W. Wright. 3, Lady Gwydyr. 4 and 6, R. P. Percival. 5, H. Lingwood. *vhc*, E. Pritchard. F. Bennett. H. Lingwood. *Selling class*.—1 and *vhc*, E. Kendrick, jun. 2, Lady Gwydyr. 3, R. P. Percival. 4, Miss E. Shuter. *Light*.—Cock.—1, Cup, and 2, R. P. Percival. 3, A. J. Thurlow. 4, G. H. Wood. Hen.—1, H. Lingwood. 2, Lady Gwydyr. 3, J. Bloodworth. 4, Rev. G. F. Davies. *Cockerel*.—1 and Cup, P. Haines. 2, W. F. Potter. 3, G. B. C. Beeze. 4, J. F. Hall. 5, J. F. Hall. 6, H. C. White. *Pullet*.—1 and Cup, F. Nettlefold. 2, J. T. Holmes. 3 and 6, L. C. C. R. Norris. 4, H. C. White. *Selling class*.—1, J. & W. Birch. 2, G. B. C. Beeze. 3, Lady Gwydyr. 4, J. W. Windred. 5, F. Nettlefold. *Dark or Light*.—Hens or Pullets.—1, G. B. C. Beeze. 3, W. F. Potter. 3, E. Kendrick, jun. 4, Miss E. Shuter.

SPANISH.—Cock.—1, W. R. Bull. 2, J. Boulton. 3, Lady Allsopp. *vhc*, P. F. Le Sueur. Hen.—1, 2, and 3, F. M. Chatterton. *vhc*, Lady Allsopp. *Cockerel*.—1 and Cup, H. Brown. 2, J. Woods. 3, J. Boulton. *vhc*, W. R. Bull. J. Francis. S. T. Nash. *Pullet*.—1 and Cup, J. Woods. 2, W. R. Bull. 3, S. T. Nash. *vhc*, J. F. Dixon. D. M. Mills. P. F. Le Sueur.

HOUDANS.—Cock.—1, Mrs. Irving. 2, C. Howard. 3, E. Wingfield-Stratford. Hen.—1 and Cup, E. Wingfield-Stratford. 2, H. Howard. 3, W. Nickolls. *vhc*, E. Wingfield-Stratford. T. Fullarton. *Cockerel*.—1, W. H. Copplestone. 2, E. Wingfield-Stratford. 3, M. W. L. Brooke. 4, Rev. H. B. Beedham. *Pullet*.—1, S. W. Thomas. 2, W. Nickolls. 3, E. Wingfield-Stratford. 4, Mrs. D. Lane. *vhc*, E. Wingfield-Stratford (2). Mrs. D. Lane. Mrs. S. W. Thomas. Rev. W. Pearce.

CREVE-COEURS.—Cock.—1 and Cup, Dr. N. Jackson. 2, W. R. Park. 3, R. Pound. Hen.—1, Dr. N. Jackson. 2, A. E. Ward. 3, W. R. Park. *vhc*, J. J. Malden. *Cockerel*.—1, Dr. N. Jackson. 2, T. Fullarton. 3, M. Hall. *Pullet*.—1, A. E. Ward. 2, M. Hall. 3, T. Fullarton.

LA FLECHE.—1, T. B. Lowe. 2, — Bagg. 3, T. Swinburne. **HAMBURGHES.**—*Golden-spangled*.—Cock.—1, S. Fielding. 2, R. W. Bracewell. 3, C. May. Hen.—1 and Cup, J. Rawnsley. 2, H. Beldon. 3, G. Randall. *vhc*, J. Jackson. *Silver-spangled*.—Cock.—1 and Cup, H. Beldon. 2, J. Rawnsley. 3, Rev. S. Ashwell. *vhc*, J. Preston. Hen.—1, H. Beldon. 2, W. R. Park. *vhc*, Ashton and Booth. *Golden-pencilled*.—Cock.—1, H. Beldon. 2, J. W. Kellaway. 3, O. E. Cresswell. Hen.—1, W. Driver. 2, H. Beldon. 3, W. L. Bell. *Silver-pencilled*.—Cock.—1, Mrs. E. G. W. Lenchford. 2, J. Rawnsley. 3, H. Beldon. Hen.—1, H. Beldon. 2, W. L. Bell. 3, J. Rawnsley. *Black*.—Cock.—1, C. Hobson. 2, T. Mallinson. 3, W. L. Bell. *vhc*, C. Pemberton. J. Rawnsley. Hen.—1 and 3, W. L. Bell. 2, C. F. Copeman. *vhc*, J. W. Kellaway. H. Beldon.

GAME.—*Black-Red*.—Cock.—1 and Cup, S. Matthew. 2, T. P. Lyon. 3, G. Carrington. Hen.—1, S. Matthew. 2, J. H. Caton. 3, T. P. Lyon. *Cockerel*.—1 Cup, and 2, S. Matthew. 3, J. Colgrove. 4, H. E. Martin. *Pullet*.—1 and Cup, D. Harley. 2, T. P. Lyon. 3, H. M. Maynard. 4, J. Goodwin. *Brown-Red*.—Cock.—1, J. Mercer. 2, C. A. Bothway. 3, J. Robinson. Hen.—1, J. Mercer. 2, Capt. H. Heaton. 3, G. F. Ward. *vhc*, H. E. Rawson. *Cockerel*.—1 and Cup, J. Mercer. 2, J. A. Mather. 3, G. M. Bond. 4, C. Rowley. *Pullet*.—1, S. Matthew. 2, J. A. Mather. 3, J. Mercer. 4, H. E. Martin. *Duckwing*.—Cock.—1, T. P. Lyon. 2, S. Matthew. 3, D. Harley. Hen.—1, S. Matthew. 2, D. Harley. 3, T. P. Lyon. *Cockerel*.—1, D. Harley. 2, J. Goodwin. 3, T. P. Lyon. *Pullet*.—1, W. Kitson. 2, T. P. Lyon. 3, D. Harley. *Any other variety*.—Cock.—1, J. Wright & Pearce. 2, J. Colgrove. 3, J. T. Theobald. Hen.—1, J. A. Mather. 2, E. Walton. 3, R. Walker. *Cockerel*.—1 and Cup, Capt. H. Heaton. 2 and 3, J. Colgrove. *Pullet*.—1 and 3, J. Knowles. 2, J. A. Mather. *Any variety*.—1, J. Knowles. 2, J. Colgrove. 3, W. Sowerbutts.

MALAYS.—Cock.—1, E. M. Le Huray. 2, J. Coop. 3, C. E. Waring. Hen.—1 and Cup, G. Burnell. 2, Rev. N. J. Ridley. 3, J. Downing.

POLISH.—*Golden-spangled*.—Cock.—Cup, C. H. Huish. 2, W. Bearnley. 3, H. E. Broad. *vhc*, J. Partington. Hen.—1, J. Partington. 2, S. W. Thomas. 3, J. Dawson. *Cockerel*.—1 and 3, H. Jarvis. 2, J. G. Lenny. *Pullet*.—1, W. D. Osroft. 2, J. Dawson. 3, C. H. Huish. *Silver-spangled*.—Cock.—1, C. H. Huish. 2, A. Smith. 3, G. C. Adkins. Hen.—1, A. Smith. 2 and 3, G. C. Adkins. *Cockerel*.—1, J. Rawnsley. 2 and 3, A. Smith. *Pullet*.—1 and 3, G. C. Adkins. 2, A. Smith. *Black, or any other colour*.—Cock.—1, A. Perry. 2, H. Beldon. 3, J. Rawnsley. Hen.—1 and 3, H. E. Broad.

LEGHORN.—*Brown*.—Cock.—1, W. Philcox. 2, H. Brown. 3, J. Hurst. Hen.—1, W. Philcox. 2, W. Kirk. 3, J. Hurst. *vhc*, J. Terry. *White*.—Cock.—1 and Cup, Mrs. Troughton. 2, Bradbury Bros. 3, R. R. Fowler & Co. Hen.—1, Bradbury Bros. 2, Mrs. Troughton. 3, R. R. Fowler & Co.

PLYMOUTH ROCKS.—Cock.—1, W. Adams. 2, R. B. Wood. 3, J. C. Fraser. Hen.—1 and Cup, J. C. Langton. 2, W. S. Evans. 3, A. Stevens.

ANDALUSIANS.—Cock.—1 and Cup, P. Bacon. 2, T. Lambert. 3, F. Winsor. Hen.—1, A. Stevens. 2 and 3, F. Winsor. *vhc*, Mrs. M. A. Wilson. 3, F. Winsor. *vhc*, Mrs. M. A. Wilson.

SULTANS.—1, Cup, and 3, C. Atkinson. 2, J. Rawnsley. 4, Mrs. C. M. Damant. *Chickens*.—1 and Cup, E. Nickolson. 2 and 3, C. Eyles. 4, Rev. J. P. Wright. **ANY OTHER DISTINCT VARIETY.**—1, T. Ekins. 2, Mrs. M. A. Wilson. 3, Miss C. E. Palmer. *vhc*, J. Rix.

SELLING CLASSES.—*Dorkings, Brahmas, Cochins.*—Price not to exceed £2.—Cock or cockerel.—1, Rev. H. R. Peel. 2, S. Tuke. 3, Rev. T. C. Peake. 4, G. H. Wood. 5, W. Nickolls. *vhc*, C. Sidgwick. Miss Smithers. T. J. Saitmarsh. C. Bloodworth. Cockroft & Ashby. Hens or Pullets.—1, S. Lucas. 2, C. Brown. 3, H. Wilkinson. 4, W. J. Nichols. 5, H. Brown. *vhc*, J. Metcalfe. H. J. Storer. S. Lucas. *Cock and hen or cockerel and pullet*.—1 and 2, A. Atlee. 3, C. Sidgwick. 4, R. Cheesman. 5, G. C. Livett. *vhc*, E. Pritchard. S. Tuke. C. Brown. R. H. Langton. *Houdans, Creve, or La Fleche.*—Price not to exceed £2.—Cock or cockerel.—1, Mrs. A. Pigot. 2, P. Hanson. 3, Bentley & Clarke. 4, R. R. Fowler & Co. Hens or Pullets.—1, C. Howard. 2, W. Nickolls. 3, Mrs. A. Pigot. 4, J. E. Pilgrim. *Any other variety except Bantams.*—Price not to exceed £2.—Cock or cockerel.—1, P. F. Le Sueur. 2, C.

Bloodworth. 3, J. Richards. 4, H. E. Broad. 5, W. Bentley. *vhc*, H. P. Jackson. *Hens or Pullets*.—1, J. Rawnsley. 2, J. Woods. 3, C. Bloodworth. 4, H. M. Maynard. 5, C. Green. *vhc*, F. M. Chatterton, G. W. Boothby, A. & W. H. Silvester, G. Carwill, G. J. Lenny. *Cock and hen or cockerel and pullet*.—1, P. F. Le Sueur. 2, G. M. Bond. 3, J. Rawnsley. 4, W. E. Roscorla. 5, J. Preston. *Ducks*.—*Price not to exceed £2*.—1, W. Nickolls. 2, J. Harvey. 3, H. Allen. *Drake*.—*Price not to exceed £2*.—1, W. Nickolls. 2, E. Shaw. 3, T. Wakefield. *vhc*, J. Kerry, J. J. Malden. *Any variety of Bantam except Game*.—*Price not to exceed £2*.—1, Rev. F. Tearle. 2, E. Walton. 3, M. Leno, jun. *Game Bantams*.—*Price not to exceed £2*.—*Cock or cockerel*.—1, W. J. Mayo. 2, T. W. Anns. 3, J. R. Fletcher. *vhc*, T. W. Anns. T. Docksey, jun. *Any variety*.—*Price not to exceed £2*.—*Hens or Pullets*.—1, A. & W. H. Silvester. 2, W. F. Addie. 3, T. H. & A. Stretch. *vhc*, T. W. Anns.

GAME BANTAMS.—*Black-Red*.—*Cock*.—1, Cup, 3, 4, and *vhc*, W. F. Addie. 2, E. Walton. *Hen*.—1, Dr. J. M. Morris. 2 and 3, F. W. R. Hore. 4, E. Morgan. *Brown-Red*.—1, Chadwick Bros. 2, J. R. Fletcher. 3, E. Walton. *vhc*, J. A. Hewetson. *Hen*.—1 and Cup, Jennings & Sugden. 2, Maitland & Farrington. 3, J. A. Hewetson. *Duckwing*.—*Cock*.—1 and Cup, J. R. Fletcher. 2, J. Smith. 3, W. F. Addie. *vhc*, J. Smith, jun. *Hen*.—1, J. A. Nelson. 2, J. Smith. 3, J. R. Fletcher. *vhc*, A. E. Ward. *Pile*.—*Cock*.—1, E. Walton. 2, F. W. R. Hore. 3, G. Vigers. *Any other variety*.—*Hen*.—1, E. Walton. 2, G. Vigers. 3, T. W. Anns.

BANTAMS.—*Black*.—1 and Cup, S. Clapham. 2, J. W. & F. J. Crowther. 3, H. Stephens. *Japanese, any colour*.—1 and Cup, O. E. Cresswell. 2, F. B. Heald. 3, Hon. Mrs. A. Baillie Hamilton. *Schright*.—1, J. Bunce. 2, M. Leno, jun. 3, Miss E. Browne. *Any other distinct variety*.—1, J. Rawnsley. 2, T. F. Phelps. 3, E. Walton.

DUCKS.—*Aylesbury*.—1 and 3, R. R. Fowler & Co. 2, Mrs. Gunn. *Pekin*.—*Drake*.—1 and Cup, J. W. Kelleway. 2, Mrs. H. M. Pease. 3 and 4, C. Howard. *vhc*, W. Nickolls, Miss M. Jones, Capt. D. Bayley, F. Howard, R. R. Fowler & Co. *Duck*.—1, J. W. Kelleway. 2, W. Nickolls. 3, W. Bygott, jun. 4, R. R. Fowler & Co. *vhc*, A. Perry. *Rouen*.—*Drake*.—1, D. Bragg. 2, T. Wakefield. 3, S. Binn. 4, R. Gladstone. *Duck*.—1 and Cup, F. G. S. Rawson. 2, W. Hulme. 3, J. Partington. 4, T. Tweedy. *vhc*, W. Hulme, H. E. Rawson. *Black East Indian*.—1, Cup, and 3, Mrs. M. A. Hayne. 2, F. W. Earle. *vhc*, Miss E. Browne. *Any other variety or Ornamental Waterfowl*.—*Pair*.—1, Mrs. A. Dressing. 2, A. Perry. 3, G. E. Smart. *Any variety*.—*Young Drake*.—1, A. E. W. Darby. 2, R. R. Fowler & Co. 3, W. Bygott, jun. *Young Duck*.—1 and 3, R. R. Fowler & Co. 2, T. Wakefield.

GESE.—1 and Cup, Smith & Sneliffe. 2 and 3, Dr. E. Snell. *vhc*, J. M. Spinks. TURKEYS.—1 and Cup, R. Gladstone. 2, Mrs. A. Mayhew. 3, J. & W. Birch.

SPECIAL CLASSES.—*Cross-Bred, or any Pure Breed suitable for the Table*.—*Heaviest cockerel*.—1 and Cup, W. E. Warren. 2, E. Barker. 3, W. Leno, jun. *Heaviest pullet*.—1 and Cup, W. Nickolls. 2, M. Leno, jun. 3, Mrs. Walcher.

TABLEFOWL (CROSSBRED).—*Fineness of quality, smallness of bone, absence of offal, and closeness of plumage to be considered in preference to mere weight*.—*Couple of cockerels or couple of pullets (not Capons)*.—1, Cup and 2, W. B. Tegetmeier. 3, W. Bearpark. *vhc*, M. Leno, jun.

PIGEONS.

POUTERS.—*Blue-Pied*.—*Cock*.—1, Cup and 3, Hon. W. Sugden. 2, E. Beckwith. *vhc*, J. Baker. *Hen*.—1, J. T. Holmes. 2, E. Beckwith. 3, R. Fulton. *Black-Pied*.—*Cock*.—1, J. Baker. 2, J. T. Holmes. 3, F. W. Hodson. *Hen*.—1 and Cup, B. Fulton. 2, J. Dye. 3, F. W. Hodson. *Red or Yellow-Pied*.—*Cock*.—1, M. H. Gill. 2, Hon. W. Sugden. 3, E. Beckwith. *Hen*.—1, M. H. Gill. 2, E. Beckwith. 3, J. Baker. *White*.—*Cock*.—1, J. H. Smith. 2, W. P. Keall. 3, Hon. W. Sugden. *Hen*.—1 and 3, E. Beckwith. 2, W. P. Keall. *Any colour*.—*Young cock*.—1 and Cup, T. Herrieff. 2, E. Beckwith. 3, Hon. W. Sugden. *Young hen*.—1, D. Combe. 3, J. Hairsine. *Pigny or Austrian*.—*Cock or Hen*.—1, Cup, and 2, P. Wardle. 3, Dr. J. B. Hicks.

CARRIERS.—*Champion class, for birds that have won more than two Prizes of the value of £1*.—*Black or Dun*.—*Cock or Hen*.—1 and Cup, Capt. H. Heaton. 2, J. Baker. 3, Withheld. *Black*.—*Cock*.—1 and Cup, Capt. H. Heaton. 2, F. Nettlefold. 3, C. G. Cave. *Hen*.—1 and Cup, M. Headley. 2, J. Baker. 3, R. Fulton. *Young cock*.—1 and Cup, E. Walker. 2 and 3, Capt. H. Heaton. *Young hen*.—1 and Cup, Capt. H. Heaton. 2, W. G. Hammock. 3, J. Siddons. *Dun*.—*Cock*.—1, Capt. H. Heaton. 2, F. Cox. 3, M. Hedley. *Hen*.—1, R. Fulton. 2, F. Cox. 3, H. M. Buskin. *Young cock*.—1 and 3, T. Hallam. 2, Capt. H. Heaton. *Young hen*.—1, H. Heritage. 2, J. Brewer. 3, T. Hallam. *Any other colour*.—*Cock or Hen*.—1, T. Hewitt. 2, J. Baker. 3, H. M. Maynard. *Young cock or hen*.—1, C. P. Covington. 2, J. C. Waterhouse. 3, W. G. Hammock. *Any age or colour*.—*Price not to exceed £5 5s*.—*Cock*.—1, C. Cork. 2, F. Cox. 3, H. M. Maynard. *Hen*.—1, H. M. Maynard. 2, G. Kempton. 3, W. G. Hammock.

DRAGOONS.—*Blue*.—*Cock*.—1, J. Wright. 2 and 3, W. Smith. *Hen*.—1 and 2, W. Osmond. 3, W. G. Flanagan. *Silver, black bars*.—*Cock*.—1, W. Osmond. 2, W. Smith. 3, A. McKenzie. *vhc*, T. C. Burnell. *Hen*.—Cup and 2, W. Smith. 3, Withheld. *Silver, brown bars*.—*Cock*.—Cup, A. McKenzie. 2 and 3, W. Bishop. *Hen*.—1 and 3, W. Bishop. 2, A. McKenzie. *Yellow*.—*Cock*.—Cup, A. Leith. 2, L. Whitehead. 3, Waterman & Sergeant. *vhc*, J. Wright. *Hen*.—1, W. McCandish. 2, J. Wright. 3, G. W. Pratt. *Red*.—*Cock or Hen*.—1, F. P. Ellis. 2, G. W. Pratt. 3, A. McKenzie. *White*.—*Cock*.—1 and 2, W. Bishop. 3, C. Howard. *Hen*.—1, C. Howard. 2 and 3, W. Bishop. *Any other colour*.—*Cock*.—1 and 3, W. Osmond. 2, W. Smith. *vhc*, C. Howard. *Hen*.—1, W. Smith. 2, W. Osmond. 3, C. Howard. *Blue or Silver, black bars*.—*Young cock*.—1, W. Smith. 2, J. Lush, jun. 3, J. Albury. *vhc*, W. Osmond. *Young hen*.—1, E. C. Young. 2, W. Osmond. 3, T. C. Burnell. *Yellow or Red*.—*Young cock*.—1 and Cup, F. P. Ellis. 2, Waterman & Sergeant. 3, A. McKenzie. *Young hen*.—1 and 2, A. Leith. 3, A. Close. *Silver, brown bars, or any other colour*.—*Young cock*.—1, W. McCandish. 2 and 3, W. Osmond. *Young hen*.—1, J. W. Carn. 2, W. Bishop. 3, Withheld. *Any age or colour*.—*Price not to exceed £4 4s*.—*Cock*.—1, J. Calcutt. 2, S. Turner. 3, F. P. Ellis. *vhc*, G. Thickett. *Hen*.—1, G. W. Pratt. 2, C. Howard. 3, S. Turner.

TUMBLERS.—*Almond*.—*Cock*.—1, Cup, and 2, M. Weston. 3, J. Baker. *vhc*, T. Hallam, M. Weston. *Hen*.—1, R. Fulton. 2, F. Rayner. 3, J. Baker. *Bald*.—*Cock or Hen*.—1, J. R. Henery. 2, G. A. Poland. 3, Withheld. *Beard*.—*Cock or Hen*.—1 and 2, M. Weston. 3, J. S. Martin. *Any other variety*.—*Cock*.—1 and Cup, E. Beckwith. 2, B. Goodburn. 3, J. Baker. *Hen*.—1, J. M. Braid. 2, G. H. Stevens. 3, M. Weston. *Flying class*.—*Long-faced, any other variety*.—*Single Bird*.—1, C. W. Pileger. 2, S. Salter. 3, T. Mathew.

BARBS.—*Cock*.—1 and 2, J. Baker. 3, R. Fulton. *vhc*, W. Larkins. *Hen*.—1, J. Baker. 2, R. Fulton. 3, E. Beckwith. *vhc*, E. B. Trotter. *Young cock*.—1 and Cup, W. Larkins. 2, J. Baker. 3, H. Heritage. *Young hen*.—1, J. Baker. 2, W. Fife. 3, M. Hedley.

JACOBS.—*Red*.—*Cock*.—1, 3, and *vhc*, S. Salter. 2, H. Heritage. *Hen*.—1, A. G. Shaw. 2, H. Heritage. 3, S. Salter. *Yellow*.—*Cock*.—1, W. Dale. 2, R. Fulton. 3, H. Heritage. *Hen*.—1 and Cup, H. Heritage. 2, W. H. Roberts. 3, S. Salter. *Black*.—*Cock*.—1, H. Jeffery. 2, R. Gibson. 3, S. Salter. *Hen*.—1, W. H. Roberts. 2, Weyman & Buchanan. 3, R. Fulton. *White*.—*Single Bird*.—1, J. Waters. 2 and 3, S. Salter. *Any other colour*.—*Single Bird*.—1, W. H. Roberts. 2, H. Jeffery. 3, H. Heritage.

FANTAILS.—*White*.—*Cock*.—1, Cup, and 2, O. E. Cresswell. 3, J. Baker. *Hen*.—1, J. F. Loversidge. 2, J. Baker. 3, W. Stevenson. *Any other colour*.—*Single Bird*.—1, S. Salter. 2, W. Stevenson.

NUNS.—*Single Bird*.—1, W. Dale. 2, R. Woods. 3, T. J. Johnston.

TRUMPETERS.—*Single Bird*.—1 and 2, J. H. Hutchinson. 3, R. Fulton.

OWLS.—*English, Blue or Powdered Blue*.—*Cock*.—1 and Cup, S. Salter. 2, J. T. Theobald. 3, P. Wardle. *Hen*.—1 and 2, S. Salter. 3, T. H. & A. Stretch. *Young Single Bird*.—1 and Cup, T. H. & A. Stretch. 2, J. Booths. 3, S. Salter. *English, Silver or Powdered Silver*.—*Cock*.—1 and 2, S. Salter. 3, R. Woods. *vhc*, F. Thirkell. *Hen*.—1 and 2, S. Salter. 3, W. F. Entwistle. *English, any other colour*.—*Cock or Hen*.—1, 2, and 3, S. Salter. *Young Single Bird*.—1 and 2, S. Salter. 3, E. W. Van Senden. *Foreign*.—*Single Bird*.—1 and Cup, R. Woods. 2, J. Baker. 3, J. T. Theobald.

TURBITS.—*Blue or Silver*.—*Cock*.—1, R. Fulton. 2, T. P. Carver. 3, J. Baker. *vhc*, T. C. Burnell. *Hen*.—1, R. Fulton. 2, S. Salter. 3, Rev. W. F. Lumley. *Young Single Bird*.—Cup, J. Baker. 2, E. Beckwith. 3, H. & G. Heading. *Red or Yellow*.—*Cock*.—1 and Cup, J. Baker. 2, S. Salter. 3, P. A. Parkin. *vhc*, J. Baker, J. Dye.

Any other colour.—*Cock*.—1, T. C. Burnell. 2, J. Dye. 3, R. Fulton. *Hen*.—1, C. A. Crafer. 2, O. E. Cresswell. 3, S. Salter. *Young Single Bird*.—1, J. Dye. 2, C. A. Crafer. 3, S. Salter. *vhc*, R. & J. Anderson.

FRILLBACKS.—*Single Bird*.—Cup and 2, A. A. Gatty. 3, R. Fulton.

SWALLOWS.—*Single Bird*.—1, F. P. Bulley. 2, J. Long. 3, P. Wardle.

MAGPIES.—*Black*.—*Single Bird*.—1, F. P. Bulley. 2, W. Tedd. 3, A. Stevens. *Red*.—*Single Bird*.—1, F. P. Bulley. 2, W. Tedd. 3, S. Salter. *Any other colour*.—*Single Bird*.—1, S. Salter. 2, F. P. Bulley. 3, W. Tedd.

ARCHANGELS.—*Single Bird*.—1, S. Salter. 2, A. Allen. 3, J. Duffus.

RUNTS.—*Single Bird*.—1, H. Stephens. 2, T. D. Green. 3, J. S. Price. *Young Single Bird, exhibited by the Breeder*.—1, Cup, and 3, T. D. Green. 2, J. S. Price.

ANTWERPS.—*Short-faced*.—*Cock*.—1, J. C. Waterhouse. 2, C. H. Buckland. 3, S. Wade. *Hen*.—1, J. J. Bradley. 2, J. Lister. 3, J. H. Doughty. *Homing, Blue or Blue-chequered*.—*Cock*.—1 and Cup, J. M. Chambers. 2, G. Carvill. 3, M. Crust. Extra 3, W. Merrifield, A. Wheeler. *Hen*.—1, W. Stevenson. 2, G. Dixon. 3, W. Merrifield. *Homing, and other colour*.—*Cock*.—1, H. Sergeant. 2, E. Wormald. 3, G. J. Lenny. Extra 3, W. H. Cottell. *Hen*.—1, J. Lister. 2, J. H. D. Jenkinson. 3, F. Winsor. *Young cock*.—1, F. A. Key. 2, C. Howard. 3, E. Wormald. *Young hen*.—1, W. Stevenson. 2, J. P. James. 3, G. J. Lenny. *Special Flying classes*.—*Homing*.—*Cock*.—1, W. Merrifield. 2, W. H. Cottell. 3, G. J. Lenny. 4, R. Newman. 5, G. Bowyer. *Hen*.—1, 3, and 5, G. J. Lenny. 2, C. Payne. 4, S. Hutchings.

ANY OTHER VARIETY.—*Single Bird*.—1 and Cup, H. W. Webb. 2, J. Long. 3, J. Baker.

SELLING CLASSES.—*Poster, Carrier, Barb, or Tumbler*.—*Price not to exceed £2*.—*Cock*.—1, J. Guthrie. 2, A. & W. H. Silvester. 3, F. W. Hodson. 4, G. Murphy. *Hen*.—1, R. Woods. 2, J. Leighton. 3, C. Cork. 4, A. & W. H. Silvester. *Any other variety*.—*Price not to exceed £2*.—*cock*.—1, J. Lush, jun. 2, F. P. Bulley. 3, F. P. Ellis. 4, R. Wood. *Hen*.—1, J. Pyper. 2, E. W. Van Senden. 3, F. P. Bulley. 4, Mrs. A. Dressing. *Pair*.—1, A. A. Gatty. 2, T. C. Burnell. 3, C. Cork. 4, E. P. Bulley. *Homing Antwerps*.—*Price not to exceed £2*.—*Pair*.—1 3, and 4, C. Candler. 2, J. J. Hewitt.

ANY VARIETY, EXCLUSIVE OF CARRIERS, POUTERS, BARBS, OR TUMBLERS.—*Young Pair*.—1, J. A. & M. F. Smith. 2, J. H. Hutchinson. 3, S. Salter.

JUDGES.—*Poultry*: Messrs. T. C. Burnell, J. Dixon, S. Matthew, T. Raines, J. H. Smith, R. Teebay, and W. B. Tegetmeier. *Pigeons*: Messrs. T. J. Charlton, F. Esquilant, Frank Graham, P. H. Jones, and Jones Percival.

HULL POULTRY SHOW.

THE fifth annual Exhibition of poultry, in connection with the Christmas Fat Cattle Show, opened on Saturday. The prize list is so liberal in some classes that the result is looked forward to with an interest only second to the Palace and Birmingham. We do not quite understand on what principle the schedule is arranged. Game have twelve classes, a £20 champion cup, and six other cups; Brahmas ten classes, with two £10 cups and two £3 cups; Cochins ten classes again, and a couple of cups. Houdans and Hamburgs, Bantams and Waterfowl, are fairly treated, but Dorkings and Spanish have but one miserable class each, and the Crèves La Flèche, Minorcas, Leghorns, Andalusians, *et hoc genus omne*, are altogether omitted. Surely the ways of agricultural shows are inscrutable. However, we must proceed to review the exhibits. The catalogue commenced with twelve classes for *Game*, which produced 132 entries. In Black-breasted Red cocks (fifteen), the winner (Fielding) also deservedly took the £20 cup for best Game cock in the Show. He was a fine powerful bird, of good colour and style, in the pink of condition, and made an easy win of it; second (Foster) was good in quality; third (Pratt) good style, but scarcely fit yet. In Black-breasted Red cockerels (nineteen) the winner (Lyon) was a big, reachy chicken, fine in feather; second (Harley), splendid in head, but rather long in body; third (Jeffries), not up to the other two, but still a good bird. Brown-breasted Red cocks, twelve entries. The first (Ashburner), second (Sowerbutts), and third (Matthew) stood out prominently from the rest of the class; all three were good lemon-pencilled birds with dark face and eye. In cockerels (eleven), first (Braithwaite) was a splendid-headed bird, scarcely big enough; second (Mercer) a good one of the proper stamp; third (Ashburner) was good in colour, but rather heavy behind. In the Any other variety cock class nine birds came forward. The first (Walker) also took the cup for Any other variety male bird. He was a yellow-legged Pile, very large and perhaps a trifle heavy-looking; second (Matthew) was a very pretty Duckwing, rather too heavy in feather; third (Sales) a Duckwing again. The superiority of feather in the Piles no doubt gained them the majority of the prizes. In any other variety cockerel (eight) Piles were again to the front; first (Knowles) being a fine slashing chicken not quite clear in white or perfect in marking, as he had a few red feathers in breast; second (Whitaker) a Pile also with a white stripe in hackle and good colour, but behind the winner in make; third (Jamieson) a willow-legged one of fair quality. Black Red hens (twelve).—First (Adams) a well-shaped one, good in head; second (Stavely) tall and very good in colour; third (Robertshaw) a tall shapely hen rather streaky in feather. Black-breasted Red pullets (fourteen).—First and cup (Lyon) a beautiful bird in all points, but rather inclined to be small in size; second (Dutton) larger, but not quite equal to the winner in colour; third (Goodwin) a nice pullet. Brown-breasted Red hens (twelve).—First (Matthew) also took the cup for Brown Red hen or pullet. She was a powerful hen, fine in shape and colour; second (Dyson) a very good dark-breasted one; third (Ward) nicely pencilled on breast. Pullets, a strong class of seventeen.—First (Warner) fine in feather and long in head; second (Ward) very close on to the winner; third (Braithwaite) pretty but small. Game hen Any other variety (four).—First and cup (Harley) a willow-legged Pile, faulty in comb, on which account we preferred second (Holmes), a pretty Duckwing well shown; third (Cameron) a nice Duckwing, rather too red on wing. Pullets (thirteen).—First (Dyson) a yellow-legged Pile, good in all points, very dark on breast; second (Staveley) a small but shapely Duckwing; third (Matthew) a Duckwing again, failing a little in colour.

Brahmas with eight classes and a liberal prize list were not as a

whole nearly up to the Palace quality. In Dark cocks (seventeen) first (Mitchell) was of good size, fair shape, and nice in comb. He had heavy hocks and was rather hollow in breast. Second (Cotes) nice in shape, good foot feather without hock, slightly mottled on breast and not fine enough in comb. Third (Kendrick) white in tail, deficient in breast, and heavily hocked. 332 (Comyns) very highly commended, good in head, perfect in comb, but heavily hocked and saddle not up yet. Dark cockerels (sixteen).—First and cup (Mitchell) we did not like. He was hocked, lumpy in appearance, deficient in saddle, and rather grizzled in colour; he was nice in head and comb. Second (Lingwood) coarse in comb and rounded in saddle, broad and large at stern, but too much down by the head. Third (Sowerby) a poor one, too high in tail, straight in back, and slipped in wing. In Mr. Comyns' two very highly commendeds we recognised the Palace sixth and very highly commended; they had hard luck here. Light cocks (eleven).—First and cup (Percival), though heavily hocked and rough in comb, won easily by size, shape, and colour. Second (G. H. Wood) fine in shape but very meaty in comb, and warm in colour on saddle. Third (Morgan) we have no note of except so far as he may be included in the general comment "a poor class." Cockerels.—First (Devonport) good in size, shape, and leg feather, but not quite clear in colour or straight in comb. Second (G. H. Wood) and third (Haines) nicely shaped hocked birds of fair size. Very highly commended (Lucas) a very stylish one, but hollow in breast. Dark Brahma hens (sixteen).—First and cup (J. Wood) a well-known hen hardly moulted through yet. Second (Percival) nice in marking but cochiny in cushion. Third (Sowerby) we did not like, as she was very rough and poor in colour. 404 (Holland) commended, large, shapely, and well-marked in the dense style, but heavy in head and brown in ground. Pullets (fifteen).—First (Percival) a mere weed, streaky in colour, and hardly a Brahma point about her. Second (Roebuck) far too long in back and indistinct in marking. Third (Comyns) nice shape and beautifully pencilled breast, but too young—our choice in a poor class. 410 (Lingwood) a good large pullet with a defective eye. 414 (Norris) very highly commended, large and beautifully pencilled, but utterly deficient in foot feather. Light hens (eleven).—First and cup (G. H. Wood) lowest on leg and best in shape, but very dirty; on this account we should have put her behind second (Mitchell), whose chief fault was a Cochinchin cushion. Third (Norris) large, but carrying too much head for a pullet, also too much tail.

Cochins, especially in the Buff classes, contained some birds we have seldom seen equalled. Buff cocks were fourteen in number. The winner (Hind) was grand in size and shape, and even in colour—in fact, a clinker, moderate hocks his only fault. Second (Weeks) another grand bird, but not quite so large, and rather coarser in comb. Third (Brown) very square in body, but rough in comb and slipped in wing—a strong class. Cockerels (twenty-four).—First (Pye) a shapely Cinnamon, good in all points. Second (Brown) large, but not so even in colour and a trifle hollow in breast. Third (Sear) smaller, but well made, streaky, however, in saddle. Partridge cocks (eleven).—First (Tudman) also took the £10 cup; he was a good-sized richly-coloured bird of true Cochinchin type. Second (Percival) the Palace winner we thought, still deficient in saddle. Cockerels.—First (Morgan) smart in shape and rich in colour, but carries too much tail. Second (Cannan) fair size and shape, but dull in colour. The light was bad when we were at this class, but unless he had some blemish undiscovered by us, very highly commended (G. H. Wood), good in all points, was a long way ahead of the winners. Buff hens (fifteen).—First and cup (Brown) a rare good one in size, shape, cushion, and feather, and very fair in colour, worth the journey to see her. Second (Pattinson) another good one, but long in leg and poor in colour after first. Third (Sowerby) a nicely-shaped lemon, not quite clear on cushion. We thought all three winners remarkable birds for any show, and the class a very strong one. Pullets (twenty-two).—First (Paxon), and second (Percival) were both too high in tail for our taste. Third (Brown); 565 (Brown) and 518 (Rigg) highly commended, were our pick out of the class. Partridge hens (eight).—First (Brown), good size and fair shape and markings. Second (Dorrington) smaller but very true in shape and well marked. 588 (Southern) very highly commended, a very well-marked one of the dark type, but wry-tailed. Pullets.—First (Tudman) a moderately marked bird with a frosted comb. Second (Rutledge) a mistake, a poor bird with no marking, inferior to 598 (Southern) highly commended, a well-marked one, and indeed to several others. Whites won both prizes in the Other variety. Old Cochinchin class (four).—First (Badger) were a fairly good all-round pair. Second (Percival) cock defective in colour on shoulder. In chickens (seven) Whites were again to the front. First (Badger), and second (Darby) being fair birds but not up to Palace form.

Spanish.—One class, two entries. First and special (Dixon) fine birds, large in face but wanting care; second (Bowlton) moderate.

Dorkings.—One class only again (eight), were poor. First (Cannan) were moderate Darks; second (Cranston) fair Silver-Greys.

Malays brought out eight moderate pens. First (Blake) hardly upstanding enough, but otherwise good; second (Richards) moderate in quality.

Houdans.—Here the classes expanded again into four. In cocks (five) the winner (Irving), who also took the Houdan cup, was a large-bodied bird, good in crest but only moderate in comb. Second (Thomas) nice in colour, but rather slight for an old bird. Cockerels (nineteen), with Mr. Beedham's four pens empty) were a moderate class. First (Copplestone) nice shape and colour, moderate in crest, very defective

fifth toe on right foot. Second (Thomas) squarer in body and better in foot and crest—our choice for first. Hens (ten).—First (Meredith) a square-shaped bird of good colour, best in crest and muffling; second (Thomas) nice in colour again. Pullets (twelve).—First (Lane) very neat in comb, crest, and muffling; second (Beldon) long in body, nicely marked, and good in comb. 686 (Millner), very highly commended, a squarely built pullet of the dark sort.

Hamburgs.—Black cocks of any age (twelve).—First (Bentley) very smart in head and bright in colour; second (Beldon) beautiful in colour but not so good in head. Golden-spangled cocks, any age (eight).—First and sectional cup (Rawnsley) a capital bird, good in comb, earlobes, and colour; second (Duckworth) a similar stamp, pressing closely on the winner. Silver-spangled cocks, any age (seven).—First (Beldon) the Crystal Palace winner again to the front; second (Rawnsley) a new one from the same yard as the Palace second, but again failing to lower the colours of the winner. Golden-pencilled cocks, any age (ten).—First (Beldon) Crystal Palace winner, also closely pressed by second (Kidson). Silver-pencilled cocks, any age (five).—First (Beldon) seemed to us very like the third at Palace; second (Rawnsley) a fresh one well shown. Black hens, any age (nine).—First (Cannan) good in colour, nice in earlobe and comb; second (Winn) a similar stamp, close up to the first. Golden-spangled hens, any age (eight).—First (Duckworth) and second (Cartwright and Butterworth) were rightly placed over the Palace winners. Silver-spangled hens, any age (eleven).—First (Beldon) the Palace winner, looking well; second (Cannan) a fine old hen, not so good in colour as the first. Golden-pencilled hens, any age (eight).—First (Webster) a very nicely pencilled bird of good colour; second (Beldon) another very good one, like the Palace second. Silver-spangled hens, any age (six).—First (Rawnsley) a new one, very fine in head; second (Beldon) the Palace winner fairly beaten here.

Game Bantams (nine).—First (Firth) a fair pen of Piles; second (Hore) moderate Black Reds; third (Swift). Any other variety Bantams (twelve).—First (Rawnsley) Black Rosecombs, very good but rather large; second (Bamford) good gold-laced; third (Charlton) nice Blacks, smaller than first but coarser in head.

Any Other Variety of Fowl.—First (Beldon) good Silver Polands; second (Partington) Goldens; third (Cannan) Silvers again. We append the prize list of the Ducks, Geese, and Pigeons, which time did not permit us to criticise in detail. Mr. Lane judged the Game and Bantams, Mr. Teebay the Brahmas, Mr. Dixon the Cochins, while the remaining poultry classes were divided between the last two gentlemen. Mr. Jones took the Pigeons.

GEESE.—*Gander and Goose*.—1, F. G. S. Rawson. 2, R. Dodsworth *etc*, G. V. Snell, W. H. Garforth.

DUCKS.—*Duck and Drake, Aylesbury*.—1, and Cup, W. Weston. 2, J. Hedges. 3, Mrs. Gunn. *Rouen*.—1, G. V. Snell. 2, J. Newton. 3, F. G. S. Rawson. *Any other variety*.—1, W. Bygott. 2, T. P. Carver. 3, Mrs. Gunn.

PIGEONS.

CARRIER.—*Black or Blue*.—1 and 2, J. Baker. 3, G. V. Cave. *Carrier any other colour*.—1 and 2, J. Baker. 3, R. Woods. *Carrier, any colour, hatched in 1880*.—1, H. Adams.

POUTER.—*Black or Blue*.—Cup and 2, J. Baker. 3, F. Stamford. *etc*, J. Guthrie, J. Hairsine. *White*.—1, R. Kirby. 2, A. Spencer. 3 and *etc*, J. Baker. *etc*, A. J. Mays. *Any other colour*.—1, J. J. Fowler. 2 and 3, J. Hairsine. *etc*, J. Baker.

TUMBLERS.—*Short-faced*.—1 and 2, J. Baker. 3, R. P. Moon. *Long-faced*.—1, 2 and 3, R. Woods.

BARBS.—1 and 3, J. Baker. 2, J. Wood. *etc*, C. J. Cave, R. Woods. *Hatched in 1880*.—1, J. Baker. 2, J. Thresh.

JACOBINS.—1 and 3, W. E. Easton. 2, J. Holt.

FANTAILS.—1, R. Wood. 2, J. F. Loversidge. 3, J. Baker. *etc*, W. J. Warhurst.

TUBBETS.—*Blue or Silver*.—1 and 2, J. Baker. 3, T. S. Stephenson. *Any other colour*.—1 and 2, J. Baker. 3, R. A. Parkin.

OWL.—1 and Cup, J. Baker. 2, J. Thresh. 3, R. Woods.

DRAGOON.—1 and 2, W. Smith. 3, A. Close.

ANTWERPS.—*Short-faced*.—1, W. F. Turner. 2 and 3, C. Hopwood. *etc*, S. Wade. *Any other variety*.—1, S. Wade. 2 and 3, C. Hopwood.

ANY OTHER VARIETY.—1 and Cup, J. Wood. 2, F. P. Bulley. 3, J. Baker.

BIRMINGHAM CATTLE AND POULTRY SHOW.

THE preparations for the thirty-second annual Exhibition of fat cattle, sheep, pigs, eorn, roots, poultry, and implements of husbandry, &c., at Bingley Hall, are being carried on with great spirit, and will be completed in time for the opening, which takes place on Saturday the 27th inst.

The sum of £2700 will be awarded in prizes in the various departments, and the entries throughout are such as to warrant the conclusion that keen competitions will take place in most of the classes before the Judges can declare the winners.

The cattle, though not quite so numerous as last year, in consequence of the classes for aged oxen being omitted, will in point of merit fully make up the deficiency in numbers, for they come from exhibitors who have previously carried away the highest honours of the Show, and others well known for the splendid stock they exhibit.

Sheep will be a fair show, and pigs will be more numerous than last year.

The entry of roots is the largest ever made, and it has been found that the entire front of the galleries, round which the roots

are displayed, will not be sufficient to hold the whole of them ; and extra stages will be erected against the wall of the gallery on the south-west side of the first-class refreshment room.

The poultry and Pigeons entered amount to 3062 pens. These will occupy their old position in the gymnasium and also nearly the whole of the bay adjoining the implement department. The whole of the pens will be galvanised wire, similar to those in use last year, which gave such satisfaction, being so much lighter than the old pens.

The demand for stand space has been as great as ever, and the Committee have been compelled to allot to exhibitors in several sections much smaller spaces than they applied for. Amongst the implement exhibitors are nearly all the leading firms in the kingdom, who will have on view some of the latest and best improvements in the various articles they show.

H.R.H. the Prince of Wales has entered cattle and sheep, and the following also contribute to the Show :—The Duke of Buckingham, Lord Chesham, Earl of Dartmouth, the Earl of Ellesmere, Viscount Falmouth, Earl of Gainsborough, Earl of Harrington, Duke of Sutherland, Lord Tredegar, Lord Walsingham, Duke of Wellington, Earl of Zetland, Sir John Swinburne, Bart., &c.

The railway companies will run excursion trains from all parts at reduced fares ; and in addition to the ordinary arrangements in this direction, the London and North-Western Railway Company have announced that they will run an eight-day excursion from Swansea and South Wales district, and excursions from Peterborough and Stamford.

The increase in the entries has necessitated the appointment of additional Judges, and Mr. T. C. Burnell has consented to act in the poultry department, and Mr. Jones Percival in that for Pigeons.

The following is a statement of the classes allotted to each Judge :—

POULTRY.—Mr. T. C. Burnell: Creve Cœurs, Houdans, Spanish, Andalusians, Leghorns, Minorcas, Sultans, variety classes of fowls and Bantams, and selling classes. Mr. James Dixon: Polish, Hamburg, Ducks, Geese, and Turkeys. Mr. W. R. Lane: All Game except Black Reds, and all Game Bantams. Mr. M. Leno: Light Brahmas, Dorkings, Fancy Ducks, and Fancy Bantams. Mr. J. H. Smith: Black Red Game and Malay. Mr. R. Teebay: Dark Brahmas, Cochins, and Langshans.

PIGEONS.—Mr. T. J. Charlton: Pouters and Antwerps. Mr. H. Child: Muffed and Long-faced Tumblers and Dragoons. Mr. Esquilant: Fantails, Nuns, Swallows, Magpies, Jacobins, Turbits, Owls, Short-billed Frilled varieties, and new varieties. Mr. Jones Percival: Carriers, Short-faced Tumblers, Barbs, Trumpeters, Runts, Archangels, and the selling classes.

THE POULTRY CLUB.

A LARGE and influential meeting was held at the Crystal Palace on the Tuesday in last week. Most of the resolutions which we printed a fortnight since were passed, the only important variations being that the addition of seven new members to the Committee was resolved upon, and the resolution as to hiring a club room in London negatived. It was announced that Messrs. L. Wright, Teebay, Dixon, and Tegetmeier had been elected honorary life members of the Club, and that several new ordinary members and associates had been elected. We were glad to see so good a meeting, and so intelligent and keen an interest displayed in the questions under discussion. The meeting lasted nearly two hours, as there was much business to get through. We trust that such of our readers as are interested in our poultry department and are not members of the Club will consider the propriety of joining it. The Club was founded to promote honesty and fair dealing in the poultry world, and it commends itself to the notice of every honest fancier.

VARIETIES.

WE have made arrangements for the insertion in our next issue of a full report of the Birmingham Poultry Show. We hope also to give a report of the Pigeons. As the Journal is in the hands of our readers on Thursday morning, they will have an opportunity of going through the classes with our report in hand. We shall arrange for an extra large supply of the Journal to be sent to Birmingham, so that there may be no difficulty in obtaining copies.

— **BIRMINGHAM POULTRY SHOW.**—We are requested to state that the whole of the arrangements for feeding and penning the birds at the forthcoming great Birmingham Poultry Show have been entrusted to "Spratts Patent," of Bermondsey, London, who will at

their stand in Birmingham Cattle Show exhibit samples of their latest novelty, a "Patent Malted Cattle Food." This firm have also received the order to feed the dogs at the coming Birmingham National Dog Show on their Patent Meat "Fibrine" Dog Cakes.

— **THE DUBLIN POULTRY AND PIGEON SHOW AND BELFAST SCHEDULE.**—We regret to hear that the proposed Show in Dublin has fallen through. We fear the Dublin men are too ambitious in their efforts. Nothing less than a grand show will satisfy them. Belfast holds a good Show each December on moderate lines, with an increasing prize list and increasing success each year. The schedule for this year's Show, to be held December 15th and 16th, is before us. There are forty-two classes for poultry and thirty-seven for Pigeons, with prizes of £1, 10s., and 5s., entry 3s. 6d.; and fifteen classes for cage birds, with prizes of 12s., 6s., and 4s., entry 1s. 6d. There are besides fourteen poultry, nine Pigeon, and one cage-bird cups or special prizes. This is a great advance on last year's schedule, and we trust a good Show will be forthcoming.

— **SHOULD WE SHOE OUR HORSES?**—Nearly every owner of a horse, nearly every groom and every stableman, will laugh at the question. Messrs. Longmans, however, have published a volume by "FREE LANCE," the object of which is to prove that the heavy horse shoe of the present day is parent to all the ills that horseflesh is heir to. "FREE LANCE" believes that no shoes at all are necessary. He has the benefit of a wide experience, which proves that shoes on the Charlier system are quite sufficient. This is simply a little band of hard iron, 5 ounces weight, let into the tip of the foot. Messrs. John Smithers of London have a large stable. They find that with the Charlier tip the horses have a surer footing, go better, are healthier—being free from diseases of the foot—work easier at a greater age, and are altogether cheaper to keep in health, and last longer than when they adopted the old customary system.

— **HOW TO MAKE FLOUR.**—The National Association of British and Irish Millers, whose offices are at 61, Mark Lane, having regard to the active competition which is now going on between Austro-Hungary, America, and England in the endeavour to produce the finest and whitest flour for bread-making, has resolved on the 10th of May next and four following days to show all the different processes of making flour at work in the Agricultural Hall. It is expected that the exhibition of the many strange varieties of machinery from all parts of the world will prove of great interest and value ; but in the meantime the Council of the Association wish it to be known that any suggestion or information will be thankfully received.

ENGLISH v. FOREIGN HONEY.

ENGLISH bee-keepers have the satisfaction of knowing that their honey is unsurpassed for excellence and flavour by the products of any other country. By English honey I mean the honey of the United Kingdom, for the honey of Ireland and Scotland is equal in quality and flavour to that of England. It is rather remarkable that I have never found one sample of foreign honey equal in flavour to ours. For years I have considered that the Chilian honey offered for sale in England is better than that of France, Spain, and Portugal—better, too, than African and Australian honey. Swiss honey is said to be excellent, but it has not been my fortune ever to taste it. Doubtless the differences of flavour in honey are traceable to the plants from which it is gathered ; but the quality of honey may be injured in taking it from the combs, and it may be spoiled by adulteration. One thing is evident—that the great bulk of foreign honey in the English market is as inferior to good English honey as foreign Grapes are to good English Grapes. The cause of this in the case of the Grapes is easily understood and explained, but with honey the reason is not so evident. Even the Narbonne honey of France, which has long been lauded as excellent, is far inferior in flavour to good English honey.

Two or three months ago a Manchester merchant who does some business with a house in Palermo (in Southern Italy), had four jars of honey from the Botanical Gardens of Palermo. Being unable to sell it he brought a sample here with the hope that I would tell him how and where it could be sold. Though quite different in flavour from English honey, being deficient in richness, it was very good. I took the gentleman with his sample to a chemist of our town, who bought 100 lbs. of the Palermo honey at

117. per lb. The gentleman sold 50 lbs. more to an Italian warehouse in Manchester, and sent the other jar to me; it was speedily sold as honey from Palermo Botanical Gardens. This consignment was called the first crop at the Gardens, and a second crop of 1000 lbs. was predicted and expected. Well, the second crop has been reaped, the half of which—viz., 500 lbs., arrived in Manchester on the 5th of this month. A sample was brought here for examination, the aroma of which was not quite so fine as that of the first crop. This made me think about the first crop of tea leaves being the best, and why the first blossoms yielded honey the most aromatic. I thought, too, of what an inviting place Palermo or Southern Italy is for bee-keeping, with its blue skies, warm climate, long summers, and rich pasture. If bees in Scotland properly managed can store 50 and 60 lbs. in a month on the moors, what would they not do amongst the Orange groves of Palermo?—A. PETTIGREW.

BAR-FRAME HIVES.

I AM a very young hand at bee-keeping, with slight pretensions to scientific handling. I have kept them for many years, sometimes getting a little honey—destroying the bees—but oftener obtaining nothing. A year or two ago they died out entirely. In the autumn of 1879 I was aided by a bee friend. The result was that our local carpenter made me three combination hives (Abbott's), and that my friend and I drove several stocks of bees "in very reduced circumstances," and I fed away, and had thus my three hives peopled, each having about six bars. To one at the third attempt I succeeded in getting a Ligurian queen accepted, and the early part of 1880 season it did well; but, as Mr. Pettigrew remarks, they, the workers, encased her at the onset with evil intent, and she was not accepted without damage—her wings were injured. This, it seemed to me, affected her well-being in the middle of the season, and by my bungling I lost her, so that this hive did not do anything like what it might have done, or what the two others did. In one of the others I found early in the spring a weakened hive and a damaged queen, and soon she was turned out dead. The remains, very small, I added to the Ligurian hive. To replace this I bought from my friend in March one of his well-stocked hives with a hybrid Ligurian at its head; this hive was very strong, so I started the year still with my three stocks in combination hives. I must preface my results by stating that we are not here in a very grand honey country; probably I have done better than I otherwise should because so many bees died the previous year—1879, scarcely any person having saved bees who did not tend them very carefully.

The hive bought from my friend swarmed on the 20th May—a monstrous swarm that filled a straw skep in which they were taken. They were placed in a box holding nine bars, and in spite of a large super capable of holding 25 lbs. of honey being given them I had two swarms from them, both large. The hybrid hive sent out a second swarm on the 30th May, a pouring wet afternoon; and the swarm not being expected was left exposed, taken unsatisfactorily, syruiped, and added to another stock. The 4th June saw yet another large swarm issue from this hybrid hive. Had I been more *au fait* with them I should have returned them to the hive and destroyed any other queens; but the fact was that these bees were decidedly extra cantankerous, disdaining the soothing influences of tobacco, and making it decidedly hot work for those who manipulated the hive, and I feel convinced that from them I have not obtained comparatively the same amount of honey. The other hive sent off two swarms; in the second, after hiving I found a few bees on the board, and looking closer found it was the queen (as I thought) rather weak. She was placed inside the hive, and the following morning two dead queens were outside, so that there must have been three in the swarm.

By driving and uniting I reduced my stocks in September to four for the winter—as many as I could conveniently manage; and beginning with three stocks, I have taken over 197 lbs. of clear drawn honey, nearly 50 lbs. of which was super honey. I am quite aware that this is nothing to some persons, but here I have no Heather harvest, and with the Limes the chief source of supply is finished, and considering my ignorance and great want of experience I think I have done wonders.

Besides the honey, however, I have about a score of bars more or less filled with worker comb from which the honey has been removed by the extractor. Most of these have been made or started on the artificial comb foundation. Neither have I with care had much difficulty with this. I have ordered the carpenter in making the bar frames to run a narrow groove on the lower surface of the top of the bar; into this I slip the comb foundation carefully cut to size as to the width, and then I fill this groove with the melted wax; a drop to fasten the sides completes the

business, and with me the bees have taken to it at once.—Y. B. A. Z.

OUR LETTER BOX.

Bees Deserting Hive (*Constant Reader*).—The desertion of a hive under the circumstances you describe is very difficult of explanation. It would probably rest in some dissatisfaction with the hive itself; and if the box weighing "nearly 50 lbs." was a single one, it must have been little less than a block of sealed store, and most unfit for winter quarters. The bees have in all likelihood united themselves to some other of your stocks, for this is the habit of absconding parties. Great weakness and queenlessness will sometimes lead to the result you give.

Draining Comb (*Constant Reader*).—The honey from store combs can be very expeditiously obtained with no injury to itself, or, to speak more correctly, with less injury than is caused by the dust, exposure, and delay involved in draining, by placing it (care being taken that no pollen is present) in a vessel, (earthenware preferred), which is in turn placed over a saucepan boiling on the fire, or into a copper. The wax melts and rises, and may be removed after cooling, as fat is taken from broth. Should the honey be rendered cloudy by the presence of undiscovered pollen, the former must be placed in a warm position—a kitchen by example—for a month or two, when the pollen will subside. The honey may then be drawn off by a syphon, and the thick remainder, after being thinned with water, will make good feeding stuff if due care be taken to prevent robbing. With combs in which brood has been raised the plan is quite inadmissible, and the extractor gives the only good means of getting the honey. Failing this, draining is the best course, but in this a comparatively high temperature much quickens the process.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51°32'40" N.; Long. 0°8'0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.					Rain.
	Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1880.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Nov.											
Snn. 14	29.461	55.1	54.6	S.W.	47.0	57.4	54.1	62.0	50.8	0.227	
Mon. 15	29.711	49.8	38.7	N.E.	47.8	54.6	39.6	52.7	37.3	0.539	
Tues. 16	28.854	49.9	46.6	S.W.	46.2	53.3	39.4	80.3	37.7	0.014	
Wed. 17	29.119	38.8	37.8	W.	45.5	45.4	34.4	79.4	28.5	—	
Thurs. 18	29.234	30.4	30.4	E.N.E.	43.1	37.5	23.9	37.5	22.8	0.492	
Friday 19	29.285	36.7	36.4	N.N.W.	41.4	42.8	30.3	72.5	30.0	—	
Satur. 20	30.122	33.3	31.0	N.E.	40.8	40.3	30.7	67.3	24.6	—	
Means.	29.398	40.7	39.4		44.5	47.3	33.5	64.5	33.1	1.272	

REMARKS.

- 14th.—High wind and rain in morning; stormy afternoon, with gleams of sunshine; rain again in evening.
 15th.—Fair morning; dark at 11 A.M.; rain commenced 11.30 A.M., heavy during the afternoon, slight in evening.
 16th.—Very stormy day, high wind and heavy showers, occasional flashes of sunshine; bright moonlight night. At 2.30 P.M. barometrie pressure only 28.695 inches.
 17th.—Fine, bright, colder day; clear moonlight night.
 18th.—Cold foggy morning; snow at 2.15 P.M.; latter part of the day wild and stormy, with rain and snow.
 19th.—Early morning dull; fine, bright, and cold rest of the day.
 20th.—Very fine, with bright sunshine; latter part of afternoon hazy; clear in evening.

Great oscillations of barometer, and considerable range of temperature, the night between 13th and 14th being excessively warm (not below 54°), while there were sharp frosts on three other nights.—G. J. SYMONS.

COVENT GARDEN MARKET.—NOVEMBER 24.

OUR market is now very bare of home-grown fruit, American goods monopolising the trade, though samples as a rule are reaching us in bad condition and making low prices, while sound parcels are in request at improved rates. Trade quiet.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	1	sieve	2	6 to 4 6	Melons.....	each	2	0 to 4 0	
Apricots.....	box	0	0	0 0	Nectarines..	dozen	0	0	0 0
Cherries.....	1/2 lb.	0	0	0 0	Oranges.....	dozen	0	0	0 0
Chestnuts.....	bushel	12	0	16 0	Peaches.....	dozen	12	0	18 0
Figs.....	dozen	0	6	1 0	Pears, kitchen..	dozen	0	0	0 0
Filberts.....	1/2 lb.	1	6	1 8	Pears, dessert..	dozen	2	0	4 0
Cobs.....	1/2 lb.	1	6	1 8	Pine Apples...	1/2 lb.	3	0	4 0
Gooseberries...	1/2 sieve	0	0	0 0	Plums.....	1/2 sieve	2	6	4 6
Grapes.....	1/2 lb.	2	0	4 0	Walnuts.....	bushel	0	0	0 0
Lemons.....	1/2 lb.	100	12	0 18 0	ditto.....	1/2 lb.	100	0	0 0 0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0 to 4 0	Mushrooms.....	dozen	1	0 to 1 6		
Asparagus.....	bundle	0	0	0 0	Mustard & Cress..	punnet	0	2	0 3
Beans, Kidney....	1/2 lb.	0	0	0 6	Onions.....	bushel	3	6	5 9
Beet, Red.....	dozen	1	0	2 0	Pickling.....	quart	0	0	0 0
Broccoli.....	bundle	0	9	1 6	Parsley.....	doz. bunches	6	0	0 0
Brussels Sprouts..	1/2 sieve	1	9	2 3	Parsnips.....	dozen	1	0	2 0
Cabbage.....	dozen	0	6	1 0	Peas.....	quart	0	0	0 0
Carrots.....	bunch	0	4	0 6	Potatoes.....	bushel	3	9	4 6
Capsicums.....	1/2 lb.	1	6	2 0	Kidney.....	bushel	4	0	4 6
Cauliflowers.....	dozen	0	0	3 6	Radishes.....	doz. bunches	1	6	2 0
Celery.....	bundle	1	6	2 0	Rhubarb.....	bundle	0	4	0 0
Coleworts.....	doz. bunches	2	0	4 0	Salsafy.....	bundle	1	0	0 0
Cucumbers.....	each	0	4	0 6	Scorzoneria.....	bundle	1	6	0 0
Endive.....	dozen	1	0	2 0	Seakale.....	basket	0	0	0 0
Fennel.....	bunch	0	3	0 0	Shallots.....	1/2 lb.	0	3	0 0
Garlic.....	1/2 lb.	0	6	0 0	Spinach.....	bushel	3	0	0 0
Herbs.....	bunch	0	2	0 0	Turnips.....	bunch	0	4	0 0
Leeks.....	bunch	0	3	0 4	Vegetable Marrows	each	0	2	0 0



2nd	TH	Linnean Society at 8 P.M.
3rd	F	Geologists' Association at 8 P.M.
4th	S	
5th	SUN	2ND SUNDAY IN ADVENT.
6th	M	
7th	TU	
8th	W	Sale of Bulbs at Mr. Stevens's Rooms, Covent Garden.

FORCING FIGS IN POTS.

PRACTICAL horticulturists have hitherto done very creditable work in bringing almost every available fruit capable of being forced, into popularity for the dessert, but somehow the luscious Fig has not had the same attention devoted to it, nor been brought with rapid strides into daily use. The Fig appears to be regarded as an aristocratic fruit, for the number of dishes of forced Figs shown at our first-class exhibitions is generally very small in comparison with other kinds of fruit, and we are led naturally to ask why that should be so. It cannot be, I think, because gardeners are reluctant to place the matter before their employers, since a man who takes a pride in forcing Grapes would also be equally able and willing to force Figs; neither can it arise from any great difficulty in cultivation, nor from the expense attached to the work, for where Vines can be forced Fig trees can be forced also at the same time and in the same house. On reflection I have thought, that as the Fig is a very ancient fruit, and its wants in the matter of forcing have been lucidly handed down to us by former generations of gardeners when there were not half the conveniences for forcing that there are now, there can be no special liking for the fruit in this country, or it would be more extensively grown. However, the fact remains that Figs have not obtained any prominent position on the dessert table. I find from what I have read that gardeners fifty or a hundred years ago took great pains to bring the Fig to perfection out of doors, and their ideas of forcing the trees in heated structures were much in advance of the means at their command for doing it. Now there is no lack of suitable houses for forcing the fruit, and I think an effort should be made to bring it more frequently into use, and with that object in view I will give my plan of forcing Fig trees. I am aware it is not new, but I have in every instance proved it a good and successful one, and hence it is worthy of record in the Journal.

Those who intend forcing a few trees should purchase some of medium size—say of two or three years' growth in pots, not those planted out. They will at this time of the year have several bearing shoots, and ought to be compact well-grown plants with the pots full of roots. If the plants or miniature trees are grown on a stem rising a foot from the pot before branching out so much the better, as then they will not be liable to throw up suckers, which ought always to be prevented after the trees are well formed. Next turn them out of the pots and cut quite two-thirds of their roots off. I used to cut

them off with a chopper. After this pot the trees in some rich soil similar to that used for Cucumbers, and press it into the pots as firmly as possible to within 2 inches of the rims, then wash the trees the same as Vines are washed, or paint them with a mixture that is used for Vines. Water the roots and place the trees under temporary protection until the forcing house is ready.

Figs thrive well in gentle bottom heat, and this should be prepared for them either in a house to themselves or in a pit in the vinery. This bed is made up of farmyard manure and leaves prepared as if for Cucumbers. After the heat has declined sufficiently the pots must be plunged up to the rims; but it will be safer if they are previously placed upon the bed, afterwards half plunged, and then finally plunged. Although Fig trees are not quite so easily started into growth as Vines are, they succeed admirably in the same house; therefore I need not describe their treatment in detail, it will be sufficient to state that the trees must be frequently syringed and watered at the roots. The pots soon become full of roots, and, indeed, so vigorously do the roots move that they are soon through the bottom of the pots and running into the bed of manure. When that is found to be the case the bed must be watered occasionally, and at this stage the soil in the pots must never be allowed to become dry; in fact, from this time the whole crop is dependent upon a plentiful supply of water, with liquid manure three times a week. Top-dressing, too, must be done as soon as necessary, as the Fig is a gross feeder, and the means of sustenance must be liberally and promptly supplied. As the Vines advance so will the Figs, but by becoming root-bound so soon their growth is not too vigorous, but just of that medium character so necessary to fruitfulness; however, some of the shoots will need the points pinched out when the fruit is swelling-off before ripening.

If the trees are started in December with the Vines, the Figs will be ripe at the latter end of May or the beginning of June. The trees should be allowed to remain in the house and ripen their wood in the same way as the Vines. The leaves will gradually turn yellow and drop off before those of the Vines; the trees may be taken out of the bed and plunged in the open ground until the autumn, then to be afforded protection in a cool dry shed until they are wanted again for forcing. If the trees are taken proper care of most of the embryo fruits on the current growth will remain on, and will produce the first crop the following year, and the second crop will be advancing while the first crop is ripening. This second crop will prove the larger as well as the better crop of the two.

By the above method of culture the Figs come much finer and of better flavour, and at the same time are more numerous than if the trees are started into growth with their pots full of roots as some advise, for it is the roots that must have the first and the best attention.—THOMAS RECORD.

FANCY PANSIES.—No. 2.

SEVERAL kind letters from authorities on Pansies have reached me since No. 1 (p. 435) appeared, corroborating all I advanced in support of the proposition that the Fancy varieties are rapidly supplanting the shows. One friend, the Secretary of the Scottish Pansy Society, says, "I am glad you are writing about the Fancy Pansies, as that class has quite eclipsed the Shows, not only with

the general public but with real old Pansy growers." The schedule of the Society's Show in June last fully bears out this view, advanced as it may appear, when not fewer than thirty prizes were offered wholly or in part for Fancies. And this revolution having taken place "o'er the border," where Pansies are more highly esteemed and more extensively raised and grown than anywhere else in the kingdom, it is not surprising that the advanced party has adherents everywhere where the flower has admirers. Given, then, that Fancy Pansies have with surprising rapidity come to the front, I may with grace say more concerning their merits and demerits.

The wealth of favouritism now accorded to them has produced the customary evil—too many new varieties are sent out, many of which either so closely resemble some already in cultivation as to seriously lack distinctiveness, or are deficient in that all-important quality, harmony of colour. It is very annoying when one has paid about 5s. for a new variety to discover that the illustrious stranger is so nearly like an old one that the two blooms have to be minutely examined to discover the difference, and when discovered to be obliged to conclude that the difference is in favour of the old one, or is so trifling that the two cannot be staged together. Upon this point I cannot too strongly insist, not only to prevent disappointment to the purchaser, but for the sake of the reputation of the raiser. In writing upon this subject in your columns in February, 1877, I said, "I would rather send out one really good flower in five years than annually put upon the market a dozen or two of mediocre merit, to the injury of my own reputation and the discouragement of those desirous of keeping pace with the times." Since that time I have not found any reason to alter the opinion; on the contrary, it has been strengthened with the blooming of every batch of new flowers. Indeed I have come to the conclusion that it would be well for all new Pansies to pass an examination for a certificate before they are recognised as qualified to rank as additions to the already too numerous Pansy family. Surely there are enough lovers of the flower to start an English Pansy Society, and the formulation of rules and the fixing of a standard are matters of detail in which our Scotch friends would gladly render valuable assistance. That the conditions are ripe for the formation of such an association cannot be contested; the flower is popular and the number of growers daily increasing; new varieties are being raised in profusion and are eagerly bought. Under the protection of such a society no schedule would be long without a Pansy class, and then what an honourable rivalry for its certificates and medals! I can imagine a great international show, England v. Scotland, and the former defeated, but I can also imagine our canny neighbours teaching us how to defeat them. May I live long enough to see these imaginings become solid facts.

Returning to the point where this digression began, it may be asked what amateurs are to do if they may not depend upon the new varieties being distinct and improvements upon the old. I can only tell them the method I have found to answer best. Write out a list of those you have, and decide how much you will spend; then place yourself in the hands of a florist who has made Pansies a speciality for years, and ask him to send as many distinct and really good varieties as he can afford for the money. Depend upon it you will be well treated. Specialists have a healthy sympathy with those who show an inclination to favour their hobby, and the catalogue price is no criterion of the exchange you will receive for your money. I am bound to add here that this opinion has been formed chiefly from transactions with the great northern growers, notably Messrs. Dicksons & Co., and Downie & Laird, Edinburgh; W. Paul, Paisley; and Cocker & Sons, Aberdeen; though I have had nothing to complain of as regards quantity from midland and southern raisers.

Thus far I have (to my own satisfaction, at any rate) proved that Fancy Pansies are in increasing favour, shown that their popularity is attended by an evil that is to a great extent remediable, suggested a national recognition of their merits in the remedy, and given a recipe by which that evil may be largely avoided. Be it mine, then, in a third communication to enumerate the varieties of this charming family that attain most nearly the standard of excellence.—M. H. MILLER, *Leek*.

VEGETABLE ROOTS FOR FORCING.

We cut our first forced Asparagus a fortnight ago; Rhubarb and Seakale will soon be ready; but I do not suppose many of your readers begin operations of this kind quite so early, so that a few notes on the subject will still be in time to be useful. Strong well-matured roots are the only kind worth attention at this season, and unless these can be had the crop will hardly pay for the labour, and little else than disappointment need be expected.

As a rule when roots are lifted for forcing they are not intended to be used again, or at least no crop in the ordinary course is expected from them until a year or two afterwards; and this evidently leads many to think, especially when the roots are intended to be thrown away after forcing, that it does not matter how they are taken up and cut so long as the crowns are only left to sprout. But it does matter, and that considerably. Let the roots be all alike good; cut and break one half of them, and be particular to keep the other half whole and uninjured, then place them all in to force together, and it will soon be seen which plan gives the best results. Those lifted carefully will afford produce some days or weeks before the other section, and both quality and quantity will be more superior in the one case than the other. This is particularly the case with Asparagus and Rhubarb; and the not unusual way of halving the roots of the latter, taking one part in to force and leaving the other to form a crop in the ground, is a mistake. Two or three good roots of anything will give more satisfaction than a crowd of ends and parings. Seakale bears ill treatment better, but it, too, should be handled carefully.

It is not necessary to enter fully into the particulars of forcing these roots, as good and practical details are often given respecting them in the weekly calendar of garden work; but I may remark that with a little heat and moisture, in either glass house or shed, anyone may easily have a supply of such vegetables as those named, and with a little care the produce will stand a good chance of coming early, excellent, and plentiful.—J. MUIR.

NEW FRENCH ROSES.

THE first instalment of announcements of new Roses has reached us, but it does not excite the flutter of excitement amongst us on this side of the Channel that it did some twenty or thirty years ago. We have learned to distrust the magnificent descriptions with which they are heralded. We have discounted the terms "magnifique," "superbe," "hors ligne," and such other high-sounding adjectives. We do not particularly care to know how many leaves there are on a branch, or whether the wood is spiny; and although we do have a grand fish now and then, the quantity of useless ones we have to throw away far outnumbers them. If out of some sixty or seventy varieties we can manage to find three or four good ones we are happy. Besides, we are getting such good Roses from our English raisers, and we have so many good opportunities of seeing them before they are let out, that we prefer waiting a bit until the French Roses are a little more known before acceding to the flattering accounts given of them by their fond parents, who are too often blind to the defects of their offspring.

The nomenclature is more absurd than ever. We have had heaps of Souvenirs, and if the Rose is good we have no objection to remember the persons whom they commemorate; but we have now got a step further. Hold your breath, ye Rose-growers of England, while I announce to you a new Rose with the following sweet little name—"Fiançailles de la Princesse Stephanie et de l'Archiduc Rudolf!" Has so old a grower as Mons. Levet no more idea of the sense of propriety and the fitness of things than to give a Rose such a name? How very much wiser was my good old friend the late Mons. Souchet in naming his Gladioli! Pygmalion, Hecla, Le Vesuve, Norma, and such-like names are surely more fitting than these Madames, and Comtes, and Princesses with their long high-sounding names, some of which will be found in the following list.

I will take first as of the most general interest the class of Hybrid Perpetuals, of which we have the following already advertised—

Guillaume Guillemot (Schwartz).—Carmined Rose, with pale reflex; large, full, and globular. Growth vigorous. A seedling from Madame Charles Wood.

Empereur de Brésil (Souper et Notting).—Red shaded with blackish violet; very full. Growth very vigorous.

Comtesse Nathalie de Kleist.—Coppered red; reverse of the petals carmined. A new colour. Large, full, and cupped.

Madame Alfred Leveau (Vigeneron).—Bright carmined rose; large, full, fine form. Growth vigorous.

Mons. Thouvenel (Vigeneron).—Velvety red; large, full. Growth very vigorous.

Rosieriste Jacobs (Madame Ducher).—Fine velvety red shaded with black; large, full, well-formed, globular. Growth vigorous.

François Levet (Levet).—Chinese Rose, of medium size. Growth vigorous.

Comtesse de Camondo (Lévêque et fils).—Fine bright rose shaded with violet; large, full, imbricated form. Growth vigorous.

Comte Frederic de Thun Hohenstein (Lévêque et fils).—Deep crimson shaded with carmine; large, full, fine form. Growth very vigorous.

Auguste Buchner (Lévêque et fils).—Bright scarlet shaded; large, full, imbricated form. Growth vigorous. Extra.

Madame Montet (Liabaud).—Very soft rose; large, almost full. Growth very vigorous. Very fine.

Anicet Bourgeois (Moreau Robert).—Bright cherry red; large, full, cupped, blooming in clusters. Growth very vigorous.

Georges Moreau (Moreau et Robert).—Very bright shaded red; very large, opening well, globular. Growth very vigorous.

Dumnaeus (Moreau et Robert).—Shaded red; very large, full, cupped, blooming in clusters. Growth very vigorous.

Souvenir de Madame Dioche (Pernet).—Carmine rose; large, almost full and globular. Growth vigorous.

TEA.

Antoine Devert (Gonod).—White, with sulphur yellow in the centre; reverse of the petals salmon rose; large, full, fine form. Growth very vigorous.

Baron Alexander de Vrints.—Pink, striped with red and white. New colour, of medium size. Growth vigorous.

Fiançailles de la Princesse Stephanie et de l'Archduc Rudolf (Levet).—Salmon orange yellow, of medium size. Growth very vigorous. A seedling from Gloire de Dijon.

Madame Caro (Levet).—Salmon yellow; of medium size, fine form, very full. Growth very vigorous.

Madame Chedane Guinnosseau (Lévêque et fils).—Sulphured canary yellow; beautiful in bud; in the shape of Madame Falcot; large, full, fine form. Growth vigorous. A grand addition for market Roses.

Madame Amadin (Pernet).—Very bright rose, with white in the centre; very large, almost full. Growth vigorous.

Madame Joseph Schwartz (Schwartz).—White, tinged with flesh rose; full, of medium size. Growth vigorous. A seedling from Comtesse Labouthe. Extra.

Reine Maria Pia (Schwartz).—Deep rose, crimson in the centre; large, full. Growth very vigorous. A seedling from Gloire de Dijon.

Prince Prosper d'Arenberg (Soupert et Notting).—Salmon red, carmine in the centre, reverse of the petals clear carmine; of medium size, full. Growth very vigorous.

MISCELLANEOUS.

Madame Isaac Pereire (Margottin fils).—Hybrid Bourbon. Beautiful vivid carmine; large, full, of immense size; perfect imbricated form, blooming all the season. Growth very vigorous. First-class variety.

Madame Cecile Bonner (Ducher).—Hybrid Polyantha. Bright rose, yellowish in the centre; flowering in clusters; very sweet, of dwarf habit. Very vigorous. This variety is a seedling from the Rosa polyantha, and will be very useful for bedding.

Blanche Moreau (Moreau Robert).—White Perpetual Moss. Fine pure white; large, full, opening well, of perfect form, blooming in clusters. Growth very vigorous.

Madame Julie Weidman (Soupert et Notting).—Salmon silvery rose, carmine and yellow in the centre; reverse of the petals violet. Large and full. Extra.

Such is the first instalment. We can hardly expect it to be the only one; but such as it is, we may say of the Roses armed with the descriptions, There are some novel things to be seen.—D., Deal.

GROWING GRAPES WITHOUT FIRE HEAT.

MR. F. WALKER's article on page 477, no doubt written in good faith, is, I think, likely to be misleading to many, not perhaps so much to the professional man as the amateur. I have carefully read the article, and I cannot see the advantage of growing Grapes as described. I do not say they cannot be so grown, but a certain amount of artificial heat produces surprising results. I do not know in what part of the country your correspondent is situated, but I think he might have favoured us with that information. Grapes and good fruits are grown under glass without fire heat, but of course unless the weather is very favourable there is but little chance of keeping them, more especially if the house is used for other plants. In a cold house I should prefer the spur to the rod system, on account of ripening the wood. No doubt some will read with a shrug of their shoulders about your correspondent's Black Hamburg Grapes turning sour: this is, I presume, what we should call shanking. In my experience, after the Grapes are ripe, nothing will turn them sour. My chief objection to an unheated structure for Vines is that there are so many such buildings, and these ever increasing, that it causes a bulk of Grapes to be in the market, and spoils the sale of better fruit. Then, again, if the house is heated it is useful all the winter, and I believe the little

fire required to keep frost out is of the greatest benefit in ripening the wood, provided the house is well ventilated.

Reverting to the article in question, I am quite convinced that whatever advantage Mr. F. Walker may see in his practice would be outweighed were he to experiment with a little fire heat. The number of bunches given is satisfactory, but weight is always preferable. One of the best of Grapes after the Black Hamburg for cold houses is Black Alicante, but to keep it without fire heat is another question. This summer I had on newly planted Vines bunches weighing 2½ lbs., but I made no attempt to keep them. I only had one or two bunches on each, so they were not worth the trouble. Lady Downe's is the worst I know for cold houses; in the first place it is difficult to set, and then when the damp autumn days arrive the Grapes soon become unfit for use. In the southern counties this culture is carried on with greater success than I should ever expect to attain in this county if I felt disposed to try it. In advising those who are contemplating building a small house for Vine-growing, I always recommend them to have it heated. I know this principle is sound, and I have no doubt three out of four of your readers will agree with me. Do not let your readers suppose it is impossible to grow Grapes with success in cold houses, as I have done it myself, and after growing them so with the aid of a paraffin stove have kept them till Christmas; but the Black Hamburg does not improve by keeping, fruit of this variety losing colour fast after it is ripe.—STEPHEN CASTLE, *The Vineyard, West Lynn, Norfolk.*

[The Grapes referred to were grown in the Isle of Wight. The advice to have vineries heated is sound.—EDS.]

CHAPTERS ON INSECTS FOR GARDENERS.—No. 15.
NEW SERIES.

"BEETLE-CRUSHERS" is the uncomplimentary phrase by which sundry newspapers are fond of designating the feet of the damsels in some of the American States, where fresh air and exercise favour a pedal development that is useful if not elegant. Probably there is a natural tendency, more marked in woman than in man, leading us to step upon a beetle purposely that may happen to be in our path; and it is one of the traveller's tales, often told though not always believed, that in warmer countries than our own the beetles appear at times in such numbers that it is impossible to avoid crushing them along the roads. It is even asserted that the insects have so swarmed occasionally as to obstruct the passage of vehicles by clogging the wheels! The beetles that are in popular language called "chafers"—for so the name is properly spelt, not with the double *f*, the root being an old Saxon word meaning to devour—are, I believe, of all the beetles occurring in Britain most notable for appearing in swarms, partly because they are frequently bred numerous in a small space, but partly also because they have a liking for each other's society. These chafers form the concluding group of the Lamellicorn beetles, with leaf-like horns, and so resembling the dung-beetles last described. In habit, however, they are generally vegetarian, and amongst the insects that are unfriendly to horticulture. We, however, suffer but slightly from these as compared with other lands: on the continent, for instance, the harm done by the larva of the cockchafer in some seasons is fearful. The perfect insect or beetle is also at times so numerous as to strip off the leaves from entire plantations, leaving an appearance that almost suggests to the observer that there had been a colony of locusts upon the spot. As producers of insect music the chafers are quite able to rival the dors. The use of this humming or buzzing is perhaps chiefly protective.

It is not needful to describe an insect so well known as is the common cockchafer (*Melolontha vulgaris*), which generally shows itself in beetle form during the month of May; nor is the larva unknown to most gardeners, though its life history may not have been worked out by them, since they are naturally anxious to destroy all examples that may turn up of the "white grub," as it has sometimes been called. In Ireland, observes one entomologist, folks often call it the "Connaught grub;" why he does not profess to say—a fleshy rather mis-shapen creature, and should it be near its full size, one apparently helpless when uncarthed, from the fact that the abdomen is gorged with food. Under ground, indeed, this grub does not move about much, the legs being feeble; but there is plenty of power in the head and jaws. Owing to the long duration of their larval state (nearly three years) cockchafers, while working unseen though not unnoticeable, do great harm to pasture and corn fields, and also in some gardens. Fortunately they have several enemies amongst the birds, the rook being an eager follower of the plough or spade to pick up larvæ that are dislodged. Besides birds some quadrupeds and reptiles feed upon them as larvæ or beetles, and they have insect foes, yet somehow their numbers keep up from year to year.

Several writers have asserted that cockchafers are particularly abundant triennially, but I have not found this confirmed by observation. Amongst the many applications recommended as remedies for the grub few are more effective than a solution of ammonia in some form, or else "gas lime," when these can be brought to operate upon the spots where the grubs are congregated. A smaller and comparatively harmless beetle that is occasionally supposed to be a young cockchafer is the pretty *Amphimalla solstitialis*, which emerges later in the season. From these species we gladly proceed to notice a more pleasing insect, the Rosechafer (*Cetonia aurata*), and none can deny that the green and gold surfaces, marked on the upper side with curiously curved lines and dots of white, are handsome as seen when the beetle is at rest, or should it be flying it displays to us as well a delicately veined pair of gauzy wings. I wish, however, that I could believe the species is as harmless as some people think it; but it certainly visits the Rose for the purpose of biting the petals, and it is stated on good authority to do damage now and then to the flowers of the Strawberry, and Candytuft proves an attraction. The bloom of the Elder and Privet bring to them *C. aurata*; and I recollect noticing one June morning a profusion of these beetles in the lanes intersecting some Fulham market gardens, where they caused some astonishment. The circumstance, however, was rather a puzzle, for it seemed most probable that the insects must have lived in their larval condition somewhere not far off, and there were not many trees in the immediate neighbourhood, though the usual food of the larva is presumed to be decaying wood. Kirby and others have discovered a larva they regarded as *C. aurata* in the nests of ants; and although on investigation



Fig. 88.



Fig. 89.



Fig. 90.

amongst gardens I failed to find any subterranean beetle grub was known which corresponded with the larva of the species, I suspect it is also a root-eater. Mr. F. Smith relates that a friend one day passing the stump of a tree gave it a kick, and to his surprise it fell to pieces, while there tumbled out of it above a hundred of these pupæ enclosed in their close cocoons of gnawed wood. A rarer beetle than the Rosechafer, and one which is only designated by the Latin name of *Gnorimus nobilis*, resembles the foregoing, but is rather less. The larva has been taken near London in the solid wood of the Apple. The garden species that is oddly named the Bracken-clock, or in some districts by the still stranger name of "Cockerbundy," presumed to be from the Welsh, *Coch-y-bondhu*. In length it averages half an inch, the head and thorax being dark green, and the elytra or wing cases rusty brown. These do not quite reach to the extremity. This insect, probably *Phyllopertha horticola*, is far too partial to gardens, and pursues a similar course to the cockchafer. The eggs are laid upon the ground, and the newly hatched grubs burrow in and feast on the roots of any plants that may be conveniently near, during June and July pay attentions to flowers in gardens or in orchards, and they have been caught in the act of nibbling fruit newly set. At night they may be swept off plants and shrubs into a net. Of late, however, this pest seems to become less abundant.

Our next group of beetles, which completes the first great division of the Pentamera, is called *Priocerata*. These, that is to say in plain English, are the "saw-horns." The moderately long antennæ are toothed or serrated, with some exceptions. This splits into two very natural families, one being hard-bodied the other soft-bodied, with antennæ and legs rather longer. The Elaters, a "name of terror," stand out prominently in the first family—beetles that are harmless enough in their beetle aspect, and which do really nothing to provoke us to destroy them, except that they will prove themselves the parents of another generation of wireworms; for though this appellation has been, and still is, conferred upon various insects, of right it belongs to the larvæ of the Elaters, or "skip-jacks" or "click-beetles," and especially to

that of *E. lineatus*. Though this is a prominent garden foe, others beside it occur on cultivated land; but others, like *E. sanguineus*, a blackish-red beetle found in woods, feed chiefly on the roots of wild plants. The wireworm (fig. 90) is dreaded not only as a consumer but as a waster, for as it works sinuous tracks amongst the roots it does a greater mischief than do larger grubs which keep near to one spot. So tough and flexible is the skin of one of these that a heavy roller passes over it without doing it injury, and the many expedients tried for their destruction have only a partial success. The beetles are far less vigorous than the larvæ, and they are provided with a singular means of defence or escape, which has conferred upon them their popular name. By means of the movement of a joint with which the breastplate is furnished in and out of a groove, the Elaters can spring into the air when lying upon their backs. This organ is shown at rest in fig. 88, and sideways as in use in fig. 89. In this same family we have a few English representatives, small in size, of the gorgeous *Buprestidae* of warm regions.—J. R. S. C.

SAWDUST FOR PROPAGATING PLANTS.

YOUR correspondent "W. K.," page 458, strongly recommends cocoa-nut fibre refuse for propagating, and he is perfectly right. I may state that I have never found any material that produces roots so quickly, surely, and numerous, in all plants that I have tried in it as sawdust fresh from the forester's sawmills, and it does its work perfectly for twelve months without being renewed. Pitcher-plants, including such varieties as *lanata* and *sanguinea*, strike freely in sawdust, and scarcely a cutting of any plant fails in it. I never saw plants make such enormous numbers of rootlets in any other material. I once potted a Pine Apple in it, and in a very short time the whole dust was so permeated with roots that when they were washed clean they resembled a wig of roots more than anything else. A Camellia was tried in it with the same result.

These facts may be of service to many who are able easily to obtain sawdust who cannot so easily procure silver sand or cocoa-nut fibre refuse. The sawdust used here is from Spruce, Larch, and Oak, all mixed together and laid about 4 inches thick over a heated chamber.—D. THOMSON, *Drumlanrig*.

CHRYSANthemUM AND FRUIT SHOWS.

LIVERPOOL.

ST. GEORGE'S HALL in this city is a noble building with imposing architectural adornments, and it was fittingly occupied on the 23rd and 24th ult. by some of the finest collections of plants, cut blooms, and fruit that have been seen at any of the autumn shows of the year. The weak section of the Show was that which included the specimen large-flowering Chrysanthemums, which were too closely and formally tied, the twisted stems being very apparent—not one bent stem should be seen in a well-trained plant; still the winning groups contained good examples of culture. The strong sections were those devoted to cut blooms and fruit; the former, especially those in the winning stands, being of remarkable excellence; the latter, notably the Grapes and Pines, indubitably the best that have come under our notice during the month. The specimen Pompons were also remarkable for their high artistic finish and the quality of the flowers and foliage. The blooms were disposed with mathematical precision in concentric circles, only one flower being retained on each shoot. Some of the plants were too flat, yet they were extraordinary examples of skilful manipulation, though necessarily stiff and formal; such plants are never seen at southern shows. Following the classes in the order of the schedule we commence with a notice of the

SPECIMEN PLANTS.—In the class for six large-flowering Chrysanthemums Mr. J. Stephenson, gardener to Major Pilkington, gained the first prize with fresh and well bloomed plants of Lady Slade, Jardin des Plantes, Mrs. Geo. Rundle, Prince Alfred, Barbara, and Nil Desperandum. Mr. W. Tugwood, gardener to J. G. Morris, Esq., Allerton, was second with good examples of Jardin des Plantes, Mrs. Geo. Rundle, G. Glenney, and Fingal. Mr. J. Hughes, gardener to R. G. Morran, Esq., a rather close third. In the class for four plants Mr. W. Tugwood was deservedly awarded the first prize for good examples of Lady Talfourd, Empress of India, Prince Alfred, and Mrs. G. Rundle; Mr. Stephenson was second, and Mr. J. Hughes third.

In the class for six Pompons Mr. Tugwood was first with excellently grown and symmetrical specimens of St. Michael, Lilac, White, and Golden Cedo Nulli, and Prince Alfred. Mr. S. Whitfield, gardener to J. T. Cross, Esq., Aigburth, was second with little smaller but equally fresh plants. In the class for four plants Mr. Tugwood was again first, Mr. S. Whitfield second, and Mr. C. Finnigan third, all showing well similar plants to those above mentioned, except *Aurore Boreale*, which was staged in the first-prize lot. An extra prize in this class was awarded to Mr. Blackmore, gardener to Captain Pemberton, for very neat specimens. Mr. Woolwright, Mossley Hill, was first in

the class for two standards with good plants of George Glenny and Mrs. G. Rundle; Mr. Foster, gardener to J. Brancker, Esq., second; and Mr. J. Hughes third. For two pyramids, Mr. J. Stephenson and Mr. J. Hughes were the prizetakers in the order named. Mr. Tunnington, Calderstone, staged six good standards in three varieties not for competition.

CUT BLOOMS.—The competition in nearly all the classes was good, many of the incurved flowers being excellent in form, substance, and colour. In the class for twenty-four blooms, incurved, there were four exhibitors. The stands shown by Mr. F. Faulkner, gardener to F. R. Leyland, Esq., Woolton Hall, and Mr. Wm. Mease, gardener to C. W. Newmann, Esq., Wyncote, were very close, and the individual flowers required careful examination from the Judges before deciding. The premier position was secured by the first-named exhibitor, who won by two points; very fine were the blooms of Golden Empress, Mr. Howe, Princess of Wales, Venus, Queen of England, Alfred Salter, White Globe, Barbara, and White Venus. Mr. Mease's fine stand of flowers contained the finest bloom in the Show of Inner Temple, also excellent examples of Mrs. Heale, Miss Mary Morgan, Princess of Wales, Beauty, Nil Desperandum, Queen of England, Hero of Stoke Newington, and Mrs. Halliburton. Mr. H. Elliott, gardener to W. G. Bateson, Esq., New Heys, Allerton, and Mr. Wm. Todd, gardener to J. W. Cropper, Esq., Aigburth, were placed equal thirds. Mr. Elliott's blooms were very fresh and good in colour, but rather undersized; the blooms in Mr. Todd's collection being large but rather flat. In the class for eighteen blooms, incurved, Mr. F. Roberts, gardener to W. D. Holt, Esq., West Derby, gained the first prize with very fine solid blooms, the best being Cherub, Sir Stafford Carey, White Beverley, Golden Beverley, Queen of England, and Baron Beust; Mr. J. Peers, gardener to R. Rayner, Esq., being a good second; and Mr. J. Foster third. In the class for twelve blooms Messrs. Faulkner, Mease, and Green were the prizetakers in the order named. Mr. Jellico, gardener to F. H. Gossage, Esq., Woolton, was first for six blooms with an even stand; Mr. E. Green was second, and Mr. F. Roberts third. Japanese varieties were not shown in such large numbers as the incurved nor in such excellent condition, yet the winning stands of Messrs. Faulkner and Mease were most creditable considering the short time Liverpool growers have taken to growing these peculiar and most interesting forms of the Chrysanthemum. The two stands in question were the chief feature of attraction in the Show. Mr. Faulkner, who secured the first position by one point, staged good blooms of Elaine, Peter the Great, Fair Maid of Guernsey, Apollo, Orphée, Ethel, M. Lemoine, and Gloire de Toulouse; Mr. Mease having equally good examples of Meg Merrilees, Chang, Bismarck, Red Dragon, La Nympe, James Salter, and Père Delaux. In the class for twelve blooms Mr. Todd was first, and Mr. J. Jellico second. For Anemone-flowered Chrysanthemums Mr. Faulkner was the only exhibitor, and was awarded a first prize. The Horticultural Association will do well to offer some greater inducement to growers of this type of Chrysanthemums.

STOVE AND GREENHOUSE PLANTS.—The winterly weather prevented many exhibitors bringing their plants, and Mr. W. Peers, Wavertree, was the only exhibitor of twelve specimens, and was awarded a third prize. Mr. Faulkner was the principal exhibitor of stove or greenhouse Ferns, and obtained the first prize for excellent plants of *Adiantum Flemingii*, *Davallia Tyermani*, *Nephrolepis davallioides*, and others. Mr. J. Peers was an easy first with admirably grown Palms or Cycads; Mr. Faulkner being second. Mr. J. Peers was again first for one Palm, showing a magnificent *Cocos Weddelliana*; Mr. S. Whitfield second; and Mr. W. Peers third. In the class for three Orchids Mr. Sherwin, gardener to W. Sparke, Esq., Huyton, was first with a very fresh *Vanda cœrulea*, *Cypripedium insigne* with forty blooms, and a good pan of *Sophranitis grandiflora*. Mr. Faulkner was a very good second, and J. Foster third. Mr. Blomily, Oaklands, Aigburth; Mr. W. Pratt, gardener to Lord Hill, Hawkstone; and Mr. J. Peers were the prizetakers for *Calanthes*. For three Epiphyllums Mr. Barber, gardener to Mrs. Barnsley, Aigburth, first; Mr. W. Bustard, gardener to J. Lewis, Esq., second; and Mr. Gore, gardener to J. Holder, Esq., third. Messrs. J. Peers, Hutton, Green, Hughes, and Hurst were the principal prizetakers for *Primulas* and *Mignonette*. Table plants were very good, but some of them too large. The prizetakers were Mr. W. Peers; Mr. Wylie, gardener to A. Holt, Esq., Aigburth; Mr. Sherwin, and Mr. Pratt. Roman Hyacinths were numerous and excellently shown, the prizes being obtained by Messrs. Faulkner, J. Peers, and J. Kelly, gardener to R. Singlehurst, Esq., Aigburth.

BOUQUETS were numerous, and many of them good; Mr. Evans, gardener to Mrs. Lockett, obtaining the first prize; Mr. Blomily and Mr. Wylie being second and third respectively. In the nurserymen's class Messrs. Jones & Sons, Shrewsbury; Messrs. Turner Bros., Liverpool; and Mr. C. Rylance, Ormskirk, were awarded the prizes in the order named.

FRUIT was largely shown and in excellent condition. In the class for twelve dishes, Pines excluded, Mr. Hannagan, gardener to R. C. Naylor, Esq., Hooton Hall, was first, having fine examples of Muscat of Alexandria, Gros Colman finely coloured and large berries, Alicante, and Lady Downe's Grapes; Conqueror of Europe Melon, very fine; Strawberry Apple; very large Beurré Diel, Beurré Clairgeau, and Glou Morceau Pears. Mr. Mease was second with good Gros Guillaume, Mrs. Pince, White Tokay, and Alicante Grapes, Coe's Golden Drop Plums, Beurré d'Amanlis Pears, and a dish of Straw-

berries. Mr. Hannagan was again first for six dishes, staging good Grapes and a William Tillery Melon. Mr. J. Wallis, gardener to Rev. W. Sneyde, Keele Hall, Stafford, was an excellent second, his notable dishes being a good bunch of Golden Queen Grape and Ribston Pippin Apples; Mr. Stevenson, gardener to R. Horsfall, Esq., being third with a very good collection. In the class for two Pine Apples Mr. McGaw was first with two remarkably fine Queens, Mr. Faulkner and Mr. Tunnington being second and third also with good fruits. Mr. Tunnington took the first prize for one Pine, no name being attached to the cards of the second and third-prize fruits. There were ten entries for two bunches of black Grapes, Mr. Wallis taking the lead with excellent and well-finished bunches of Gros Guillaume; Mr. Stephenson being second with good Alicantes; and Mr. C. Finnigan, Huyton, third; Mr. R. Elphinston, gardener to J. Heywood, Esq., Derbyshire, being awarded an extra prize. For two bunches of Muscat of Alexandria Mr. Hannagan; Mr. J. Hurst, gardener to W. B. Bowring, Esq.; and Mr. F. Roberts were the successful prizewinners. For four bunches of Grapes, distinct, Mr. Wallis gained the premier award, being closely followed by Mr. Hannagan, and Mr. Finnigan was a good third. For two bunches of white Grapes, not Muscat of Alexandria, Mr. J. Wallis was again first with Golden Queen, followed by Mr. Elphinston with Buckland Sweetwater, and Mr. Gore. Splendid examples of culture were staged in the above classes. Pears were largely shown; and in the class for eight varieties, distinct, Mr. Hannagan was first with good dishes of Marie Louise, Beurré Clairgeau, Duchesse d'Angoulême, and Joséphine de Malines; Mr. Dullachie, gardener to Mrs. Uzwilschenbart, second; and Mr. Kelly third. For four dishes Mr. Hannagan again took the lead, followed by Mr. Kelly and Mr. J. Lowndes, gardener to S. S. Parker, Esq. For single dishes of dessert and stewing Pears Messrs. Mease, Hannagan, Lowndes, Evans, and Whitfield were the prizetakers. For six dishes of dessert Apples Mr. Hannagan was first with Ribston Pippin, Blenheim Pippins, and Kerry Pippin; Mr. Lowndes second; and Mr. C. Rylance, Ormskirk, third. In the class for three dishes Messrs. Stephenson, Lowndes, and Evans took the prizes in the order named. Mr. Rylance was first for eight dishes of kitchen Apples, with fine fruit of Lord Suffield, King of Apples, and Surprise; Mr. Hannagan being second with Warner's King, Lord Suffield, and Reinette de Canada; and Mr. Kelly third. There were seven entries in this excellent class. For four dishes Mr. H. J. Johnstone was first, his best varieties being D. T. Fish, Warner's King, and Rylance's Surprise; Mr. Dullachie second; and Mr. Vaughan third. In the remaining classes Mr. Johnstone, Mr. Rylance, and Mr. T. Robinson, gardener to W. B. Halhead, Esq., were the chief prizetakers.

MISCELLANEOUS EXHIBITS.—Some excellent Alicante Grapes and two Mammoth Gourds, weighing respectively 93 lbs. and 97 lbs. were exhibited by Mr. John Smeatham, gardener to F. D. Nuttall, Esq., St. Helens, who was awarded a cultural commendation. Mr. Cannell of Swanley, Kent, exhibited a fine collection of cut blooms of single and double zonal Pelargoniums, many of the varieties being new, with pips of an immense size, and most brilliant in colour. Mr. Cowan of the Garston Vineyard exhibited a group of choice flowering and foliage plants, tastefully arranged and highly effective. Messrs. R. P. Ker & Sons and Turner Bros. also exhibited attractive groups of plants, the latter showing some beautiful wreaths and bouquets. The above groups added materially to the general effect of the Show, which was the first autumn Exhibition of the Horticultural Association, and was highly creditable to both the managers and competitors.

BIRMINGHAM.

Spacious as is the handsome Town Hall in which the Show was held on the 24th and 25th ult., it was altogether inadequate for an Exhibition of such magnitude as the one under notice. The principal Hall was crowded, or rather overcrowded, with grand specimens of large-flowering Chrysanthemums, and in the gallery the Pompons were packed in a broad dense mass. The appearance of this large bank of flowers was unquestionably improving, but it was utterly impossible for anyone to examine the plants individually, and the Judges must have found it extremely difficult to make their awards. To have properly displayed the plants, flowers, and fruit placed in competition a building twice the size would not have been too large. The specimen plants referred to were of extraordinary size, the display of cut blooms being correspondingly inferior; yet in this section there was a marked improvement since last year, and a few excellent examples were noticeable in some of the stands. *Primulas* were grand; some good stove and greenhouse plants were staged, and fruit was well represented. The effect would have been better had the "table plants" been arranged down the central tables, but when managers of shows are overwhelmed with exhibits they have to do what they can rather than what they wish, and much credit is due to the Birmingham officials for disposing of the various collections so well as they did. The system of judging and placing the cards was in all respects satisfactory, and altogether the Show was of great excellence. We can only refer briefly to the classes.

SPECIMEN PLANTS.—In Class 1, for nine large-flowering Chrysanthemums, five collections were staged, the first prize being £3, and in addition a silver cup value £5, given to the winner as the "premier" prize. Mr. Stacey, gardener to F. Osler, Esq., Edgbaston, clearly proved himself the premier exhibitor, not only by winning the cup, but by his success in other important classes. His nine cup plants

were marvellous examples of culture. They were about 2 feet high from the pots, with slightly convex surfaces from 5 to 6 feet in diameter. Nor were the plants "staked out" so as to make them appear as large as possible; on the contrary, the flowers appeared rather to have been drawn together as if to reduce the size of the specimens to permit them to be passed through the doors of the building. This somewhat marred their appearance, as it exposed the bent stems. Had these specimens been tied out as thinly as some that have been exhibited this year, notably at Kingston and Westminster, they would have been 9 feet in diameter. The smallest, and probably the most meritorious, specimen was Bronze Jardin des Plantes, with nearly or quite a hundred flowers of superior quality. Such a large and well-finished example of this variety has probably never been seen before. The specimens of the Mrs. Rundle type were crowded with excellent flowers, from two hundred to three hundred on each plant; indeed every plant was of wonderful excellence, and showed how much could be accomplished by attention and good culture. Mr. J. Crook, gardener to W. Milward, Esq., was a close second. The training was less cramped, more natural, and the foliage and blooms were excellent, but the stems of the back plants were a trifle weak. It was hard to lose with a collection that would probably have secured the foremost position at any other show that has been held this year. Mr. F. Denning, gardener to J. Jaffray, Esq., was placed third with smaller, yet good, and the most correctly trained plants of all. An extra prize was worthily awarded to Mr. Dyer, gardener to T. W. Webley, Esq., in this great and admirably contested class. In the class for six plants Messrs. Stacey and Dyer were the respective winners; for three plants Mr. Crook, and Mr. Jinks, gardener to J. E. Wilson, Esq., all the specimens being fine, those of the last-named exhibitor rather small but admirably trained. After such splendid examples of culture as those referred to the single specimen class was disappointing, the plants being overtrained and lacking vigour, and the class might well have been dispensed with.

Pompons were numerous, very large, and as none of them had been disbudded, densely flowered. In the class for six plants Mr. Stacey was again to the fore with free informal specimens, closely followed by Mr. Newell, gardener to J. Hayman, Esq. For three plants the redoubtable Mr. Stacey was once more the victor, Mr. Jinks second; and for a single specimen Mr. Dyer was the winner with the freshest and most naturally trained plant in the Show, not a stake nor bent stem being visible. Mr. Newell was an excellent second in this class, and Mr. Stacey was awarded an extra prize. All the plants in these classes were very fine, but some of them too flat and closely trained. In the class for one Japanese Chrysanthemum Mr. Denning won with a large and attractive example of Elaine, Mr. Jinks following with a smaller specimen of the same variety. It is highly probable if some of the Chrysanthemum Societies were to offer prizes for specimens of Japanese varieties that something striking would be produced in a year or two, and the experiment might well be tried. It is worthy of note that the best plant in the Show at Kingston was the Japanese variety La Nympe, and the remarkable standards exhibited at the Aquarium in 1879 proved that some of the Japanese forms are well adapted for specimens.

CUT BLOOMS.—This, the strong feature at some shows, was the weak one at Birmingham. The local growers do not appear to devote their energies to the production of superior flowers for cutting, and it must be added they have little inducement to do so, the prizes being small. In the class for eighteen blooms Mr. Shingler, gardener to T. Tonks, Esq., Harborne, was placed first; Mr. Palmer, gardener to R. C. Bradley, Esq., Handsworth, second; and Mr. Comfort, gardener to G. A. Everitt, Esq., Knowle Hall, third. Mr. Palmer's blooms were the best in form, but the stand was deficient in highly coloured flowers. Mr. Shingler's flowers were flatter, but fresher and brighter, and hence, we presume, the verdict of the Judges. Messrs. Comfort, Shingler, and Palmer were the respective winners with stands of twelve blooms, and for the same number grown within three miles of the Exhibition the prizes went to the two last-named exhibitors, and Mr. Yallier, gardener to J. Marigold, Esq. Most of the stands were irregular, the best blooms being Mr. Palmer's Golden Empress of India, and Mr. Comfort's Hereward, which were splendid. Small special prizes were offered for Japanese blooms, but we only saw one inferior stand. Superior stands of these varieties should be seen at all shows, as they always attract the attention of visitors.

PRIMULAS.—Cultivators who have not seen Primulas as they were exhibited at this Show have no idea of the excellence to which the plants can be grown. Nine classes were devoted to them, and the display was magnificent. For Mr. Thomson's special prizes for twelve plants Mr. Ashman, gardener to Mrs. W. G. Madeley, Yardley, was first with wonderful examples, the foliage having a spread of 2 feet, the plants having from five to seven vigorous trusses, each about 15 inches high from the surface of the pots; the varieties, Thomson's strain, being excellent. Mr. Caldicott, gardener to W. Matthews, Esq., Edgbaston, was a very close second with dwarf, sturdy, and splendidly flowered examples; and Mr. Denning third with fresh and fine plants of great excellence. This exhibitor secured Mr. Tomkins' prize, followed by Mr. Jinks, both exhibiting well. The Society's prizes for twelve and six plants (nurserymen) were won by Mr. Tomkins, a celebrated grower, who was first in both classes, and Messrs. Pope and Sons. Mr. Tomkins' plants combined freshness with vigour, and large flowers, the darks rich and the whites pure. In all good qualities this collection was remarkable; it has probably never been

surpassed and seldom equalled. Messrs. Pope's were also good. The prizes offered for gardeners in the classes devoted to them were won by Messrs. Jones, gardener to S. Eaton, Esq., Harborne, Ashman and Jinks, firsts, followed by Messrs. Caldicott, Jinks, Leested, and Chadwick, all of whom staged collections in which superior culture was unmistakeably apparent, and all who contributed to these classes deserve high commendation.

STOVE AND GREENHOUSE PLANTS.—Mr. Dyer won the chief prize for nine specimen plants, all of which were good, the most noteworthy being *Eucharis amazonica* with thirty spikes, each averaging five flowers. Mr. Herne, gardener to T. Hall, Esq., Warley Hall, was second, his collection including telling specimens of *Plumbago coccinea*, not often seen so good, and *Eupatorium odoratum*. Mr. Crisp, gardener to B. Scarf, Esq., secured third honours. For six plants Messrs. Jinks and McGregor were awarded the prizes for excellent exhibits. Poinsettias were highly meritorious. For three pots, not less than five heads to each, Mr. Herne was first, each pot (a 12-inch) containing twelve plants a foot to 18 inches in height with good foliage and heads. These pots, as may be imagined, produced a brilliant effect. Messrs. Crook and Dyer followed with excellent exhibits. Mr. B. S. Williams' prizes for table plants in pots not exceeding 6 inches in diameter brought out some excellent collections, and the prizes were awarded to Messrs. Herne, Jinks, and Palmer in the order named. The first-prize plants were perhaps the best in quality, but too large, except for a Guildhall banquet, and as gentlemen's gardeners are not often expected to furnish tables of that character the chief prize, we think, ought to have gone to Mr. Jinks, whose plants were of the right size for a gentleman's table and were of good quality. Broad-leaved *Dracenas* in 6-inch pots are too obstructive for this purpose, and the first-prize collection contained four of them. We direct attention to this class, not as questioning the ability of the Judges, who were competent men and discharged their duties carefully and well, but to point out the desirability of limiting table plants to 5-inch pots, as if plants cannot be grown in them suitable for the purpose indicated they are not worthy of a prize; while if really well grown in 6-inch pots they must inevitably be too large, as in this instance, except for public banquets. We have seen so much divergence of opinion amongst judges in adjudicating on table plants, so much perplexity and hesitation, so many awards made with reluctance to plants of good quality but too large, that we consider the suggestion we have made of practical importance, and it is commended to the attention of the committees of horticultural shows generally. Prizes were offered for various other plants, but the exhibits were not generally noteworthy.

FRUIT.—Although the display was not quite equal to that of last year some very good collections were staged. Mr. Crawford, gardener to J. Cartland, Esq., King's Heath, secured the premier award for six dishes with Grapes, a Pine Apple, Pears, and Plums, all of good table quality. Mr. Willis, gardener to W. Foster, Esq., Tenbury, was second, and Mr. Jinks third. For four dishes Mr. Stacey was the chief winner. He staged good Grapes and splendid Pitmaston Duchess Pears. Messrs. Jinks and Denning followed in the order named. Mr. Comfort secured the first prize for three dishes of black Grapes with fine and well-coloured examples of Alicante; Mr. Dyer being second with larger bunches and smaller berries, and Mr. Rawbone a good third. An extra prize was deservedly awarded to Mr. Crawford. White Grapes were less meritorious, except the first-prize Alicantes of Mr. Stacey, which were in excellent condition; and good examples of Trebbiano from Mr. Crawford. Mr. Comfort easily secured first honours for a single bunch of black Grapes with a large, handsome, and well-formed bunch of Gros Guillaume—quite the premier bunch of the Show. Mr. Stacey had the corresponding prize for white Grapes with small but good Muscats. Mr. Griffiths, gardener to E. Tonks, Esq., staged a large and superior Queen Pine and secured the chief prize, followed by Mr. Freeman, gardener to Z. Walker, Esq., Hall Green, with Black Jamaica. For twelve dishes of Apples Messrs. Jinks and Willis secured the prizes; they were also second and third for six dishes, Mr. Griffiths being first. The specimens were not large, but many of them were richly coloured. Mr. Willis secured the first prizes for twelve and six dishes of Pears with very good fruit. Prizes were offered for single dishes of fruit, but only the very fine Duchesse d'Angoulême Pears from Mr. Comfort were of special excellence, and these had probably been grown under glass.

BOUQUETS.—The majority of these were too crowded. In the nurserymen's class Mr. Hans Niemand (Mr. Spinks, manager), was worthily placed first with a tasteful arrangement of *Eucharises*, red *Bouvardias*, *Camellias*, and *Gauze Fern*, Messrs. Pope & Sons following rather closely. In the gentlemen's gardeners' class Messrs. Jinks, Jones, and Crisp were the prizewinners, Mr. Merriman, gardener to H. A. Hayman, Esq., receiving an extra prize. Although some exception was taken by a few critical onlookers to the awards, they were undoubtedly correct.

MISCELLANEOUS EXHIBITS.—Mr. Vertegans of the Chad Vale Nurseries exhibited some splendid large flat baskets of flowers; one filled with semi-double blush Primulas, raised from seed, was very beautiful, as also was another furnished with Poinsettias and Tuberoses; he had also fine baskets of Roman Hyacinths, *Bouvardias*, Zonal Pelargoniums, Azaleas, and mixed Primulas. Mr. Hans Niemand exhibited some rustic vases, durable and artistic, made and tastefully furnished by Mr. Spinks; one of them, containing a *Dracæna*, with *Cyclamens*, fine trusses of *Luculia gratissima*, and

Isoplepis, was very beautiful. These vases are suitable alike for rooms and conservatories, and the water can be drained from them without touching the floor or carpet. Mr. Cannell had a brilliant stand of Zonal Pelargoniums in superior varieties, and some very rich *Primula* blooms. Mr. Taylor, gardener to J. Evans, Esq., Hammerwich, Lichfield, exhibited an extraordinary *Cineraria* to show the efficacy of his "new plant manure." This plant was stated to have been raised from seed sown on April 30th; it was 2½ feet high and the same in diameter, with vigorous branching growths, thick dark green foliage, and large flowers. Mr. Latham, Mr. Redfern, and other officials rendered the Show as pleasant as it was successful.

OXFORD.

This Society held its annual Show on the 23rd and 24th ult., in the spacious Corn Exchange, Oxford. The exhibits were numerous. Most of the plants bore good blooms, although, as elsewhere this season, many incurved varieties, especially of the Rundle type, were not first-rate. One specimen of George Glenney had about forty-five blooms. Cut blooms were not largely shown, but some excellent stands were staged. A special feature in this Show were the grafted trained standards of four or more varieties in one plant, some of them exceedingly handsome. The Oxfordshire Society is almost entirely composed of amateurs, and has about 250 members, from the shoemaker to the Oxford professor. The Society enjoys good patronage, and gives very substantial prizes. The Duchess of Marlborough visited the Show during the day, and the Exchange was very crowded all day, and altogether the Show was a great success and excellently managed by the Secretary, Mr. A. Greenaway. The Judges were Mr. C. Hill, Oxford, and Mr. N. Davis, Camberwell.

HOW I FAILED TO GROW GOOD ASPARAGUS.

ASPARAGUS is one of the most important vegetables grown in the kitchen garden, as it comes into season at a time when vegetables are very scarce; it is therefore rather serious for the gardener when the crop fails, yet I have failed to grow good Asparagus, and will point out what my system has been. The soil in the garden under my charge is a stiff shallow loam; the subsoil is a kind of shale, and rock beneath. Most vegetables, Strawberries, Peach, Nectarine, Apple, and Pear trees, all succeed well. The piece of ground where I intended to make the beds was rather wet, so in October I marked out four beds and two ridges. The soil was removed and 6 inches of clinkers placed at the bottom, which were covered with fern to keep the drainage clear of soil. Afterwards all the soil was returned and some well-decomposed dung was placed upon the bed. Trenching was then commenced by taking out 1 yard width of soil and wheeling it to the other end of the bed to fill up the last trench. I placed in 3 inches depth of well-decomposed dung and a sprinkling of inch bones, when the first spit of soil and shovellings were placed upon the dung. I then put a layer of dung, fresh loam, and bones well mixed together upon the first spit of soil until the trenching was finished. A covering of the same mixture as that over the drainage was placed on the surface. The beds were then dug one spit deep and thrown up into ridges a yard wide, which in March were forked down. Early in April they were again forked over and prepared for the plants. The beds were 4 feet wide with three rows of plants, in each 1 foot apart each way. The paths were 2 feet 6 inches wide.

The Asparagus was planted as soon as growth commenced; the line was placed the length of the bed in the centre, and with a hoe I drew the soil towards the edge of the bed. At the bottom of the trench a mixture of dung and loam was placed, and covered with sea sand. The roots were carefully spread out, a man following to cover the plants with loam and manure. When all the beds were planted a slight coating of sand was thrown over them, raking, levelling, and edging them in the usual way. Owing to the mild showery weather at the time, the plants soon started and grew remarkably well for the first two years. The beds were kept free from weeds, and a small Dutch hoe was frequently run over the beds to keep the surface open. In November when the haulm was quite ripe it was cut down, and the beds were carefully pricked over with a steel fork, a dressing of fresh dung being placed on them. In March the dung was raked off the beds and dug into the paths. After two years' growth the Asparagus was very fine and I expected a good supply in the spring, but time passed and no growths appeared. I then examined the plants to find that after all my trouble and care nearly half of them were dead. I felt quite disheartened, as the two ridges were in the same condition. I have planted at different times three or four sets of beds, but without drainage, employing the same compost as described above, but with more sand in the mixture, and the result has been a failure in each case. It is very remarkable that all the plants grew so satisfactorily for two years, and the third year nearly one-half died. I have tried seed sown in drills, the plants being thinned to 1 foot apart; also plants one, two, and three years old, with no success. I shall be glad to obtain any

information upon growing Asparagus in such soil as I have described. In sandy loam I have been successful with it, but a stiff retentive loam is very different.—JOHN NUNNS, *Wimbledon*.

GARDEN REFUSE AND ITS USES.

MR. RECORD'S remarks on this subject on page 476 were well worthy of a place in the *Journal of Horticulture*, as fortunately, or unfortunately as some may think, a rubbish heap or heaps are to be found connected with every garden. These are frequently much too conspicuously situated. In many instances there are two such heaps—one to which all rubbish from the pleasure grounds is taken, the other for that of the kitchen garden. Here we have three separate heaps, all of which in the course of twelve months become of considerable size, and eventually prove extremely useful for various purposes. For the rubbish which accumulates in the pleasure grounds a large trench, from which fully fifteen loads of earth was taken, was cut at the back of a conveniently situated shrubbery. Into this trench, commencing at one end, all the sweepings, parings of turf, old bedding plants, weeds, and any leaves not good enough for hotbeds are thrown. In about two years the rubbish in that part of the trench first filled, to the extent of about one-third of the whole, is thoroughly decayed, and therefore in a fit state for use. After being thrown out it is well mixed, all undecayed portions forked out, and then the mixture of vegetable soil and road grit (the latter comes off the paths) is worked into the strong heavy soil of the flower beds used with heavy soil when tree-planting, and is particularly good for stiff land intended for Potatoes. A few barrowloads of it are often useful in the frame ground and the potting shed should the ordinary leaf soil be scarce. The greater part of the grass from the mowing machines is taken to the farmyard, which I am inclined to think the best place for it. In some places it is given to the pigs, and is by them rapidly trampled into manure, and which is very effective on some soils.

The heap of kitchen garden rubbish is not buried, as it is not to lay unmolested so long, and is more easily prepared above ground. To this heap all the sweepings from the houses and the rough rubbish from the potting shed is wheeled. This is kept squared up as neatly as possible, and once a year—usually about this time—is turned over, the roughest portion being thrown out and burned; the ashes being stored away in a dry place, and are found of great service to the Carrot, Onion, and other crops. The heap of rich soil, which it must be admitted generally contains a great quantity of weed seeds, is usually distributed on the meadow land as an exchange for good fresh farmyard manure, which is employed first for hotbeds. If this exchange could not be effected I should unhesitatingly use the heap in the kitchen garden, as I do not believe in the possibility of growing good crops without a fair amount of manure, and during most seasons weeds can easily be kept down.

The third heap is composed principally of old soil from pot plants of all descriptions, with siftings and other rubbish from the potting bench. This mixture, when well broken up and cleared of any rough material, is in the spring freely employed for potting all kinds of summer bedding plants, and also proves almost invaluable in the frame ground. From the fact of its being rather light and sandy it is particularly suitable for early Carrots and Potatoes, and we also employ it with a little rougher soil added for Cauliflowers and Peas. After these crops are over much of it is again collected, and the next season is worked into naturally very stiff soil for early Potatoes and Carrots, to the great benefit of both crops.

I have been asked by gardeners at our local horticultural meetings how I managed to obtain such early Potatoes as Mona's Pride or Veitch's Improved Ashleaf of such good shape from the open ground. When informed that it is simply by freely using old potting soil the remark at once made was, "Oh! we haven't time for such coddling." Perhaps not, but at the same time I well knew that these men "coddled" with many things that neither my employer nor myself cared anything about. To have Potatoes fit to eat, and also good for exhibition, I here found it absolutely necessary first to bastard-trench the ground, and afterwards to work into the rows as much as possible of light sandy soil. The fact of having a large and good garden does not insure success. It is by attending to the smallest details that great things are accomplished. As it happens I have neither a large nor a good garden to manage, and what little I have achieved is partly owing to making good use of the soils obtained from the rubbish heaps. Call it "coddling" who will.—W. IGGULDEN.

BRUSSELS SPROUTS.—To produce the "best of Sprouts" ought the crown of the plant to be cut out or not? I find such diversity

of opinion on this point that I think the subject worth discussion in the *Journal of Horticulture*.—G. O. S.

PROPAGATING THE POTATO.

MESSRS. HOGG & ROBERTSON have sent us the accompanying woodcut, which represents an instrument that has been employed for the purpose of taking out the eyes of Potatoes with as small a portion of the substance of the tuber as possible, so that the remainder may be used as food. The following experiments with it were made by Jolliffe Tufnell, Esq., of Dublin, and by whom they were recorded in the *Irish Farmers' Gazette*:—"I purchased the scoop in question, and proceeded to the establishment of Messrs. Hogg and Robertson, Mary Street, and obtained from them a Rock Potato weighing $5\frac{1}{2}$ ozs., and containing nine eyes. I scooped out each of the eyes, seven of which were good and strong, and two very weak indeed. The weight of these nine eyes amounted only to $1\frac{1}{4}$ oz.

"I took the eyes to the house of a friend—the Rev. Mr. Alcock, 38, Lansdowne Road, Dublin—and asked his permission to plant them in his vegetable garden, which he kindly granted, and they were set in good rich ground, as ordinarily manured with stable dung for the rest of his vegetables. They were put in a drill a foot from each other. Eight of these eyes vegetated and came up; the ninth (one of the weak ones) died. These eight plants received no further treatment in the way of extra covering with earth or any artificial manure. They were left to Nature, as any ordinary Potatoes, and dug upon the 23rd of October—that is, six months after planting.

"The result was as follows:—The total number of Potatoes under the eight stalks was 114, of these 52 were small, but many quite large enough for seed. Thirty-eight were table Potatoes of ordinary size, and thirteen very large, while only eleven showed any trace of spot or disease.

"This scoop, I afterwards learned from Mr. Henshaw, was never intended for the purpose to which I put it, but is simply what the cooks employ for scooping out pieces of Carrots and Turnips for soups."

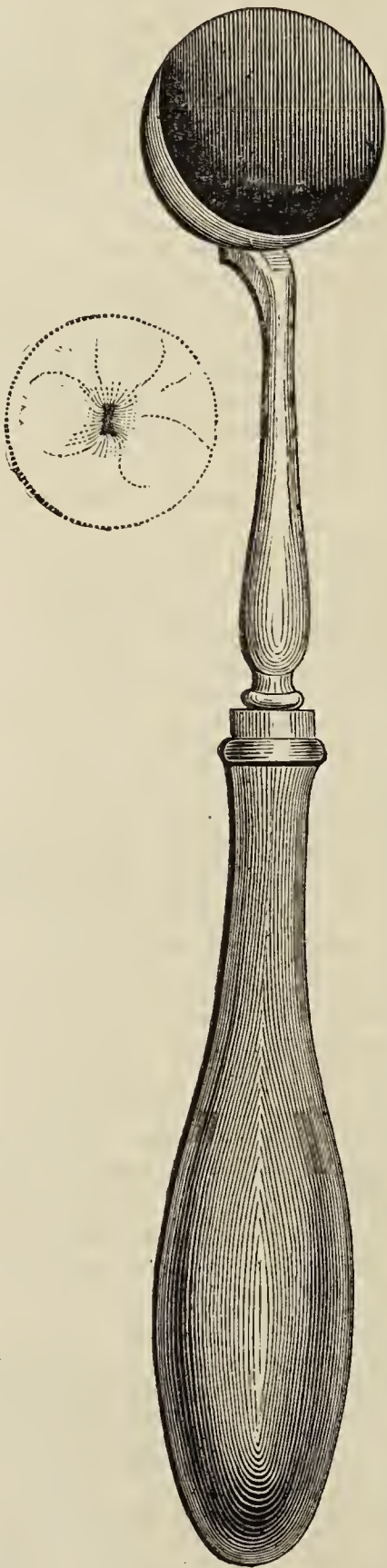


Fig. 91.

PLANTS FOR HOUSE DECORATION.

PLANTS for house decoration, as well as those that are useful for cutting, are what most gardeners require. I have to supply large quantities for both purposes with but little convenience, yet I have been rather successful. I will now, however, only enumerate those plants which are useful at this season of the year. Bouvar-

dias Bridal Wreath, Vreelandi, and Maiden's Blush are valuable varieties, being so free in blooming. Cyclamens raised from seed sown in January will flower the following autumn, and if grown in a rather warm house and kept moist during the summer they will produce from twelve to eighteen or more blooms. Plants of *Solanum Capsicastrum* from early-sown seed, grown in pots plunged in good soil on a south aspect (which I prefer to planting out), will grow 18 inches high, as much in diameter, and be laden with berries. *Chrysanthemums* are extremely useful, the Japanese varieties being the best for cutting; Elaine is very fine, and flowers early. *Schizostylis coceinea* succeeds best if shaken out of the pots the plants have bloomed in, placing the largest in 9-inch pots; this is better than planting them out, as is generally advised. *Begonia fuchsoides*, *B. insignis*, *B. Saundersii*, and *B. asotensis* should be grown to bloom through December and January with bulbs, Lily of the Valley, *Spiraea japonica*, *Plumbago rosea*, *Poinsettias*, the old white Azaleas, *Euphorbia jaequiniaeflora*, *Linum trigynum*, and Zonal Geraniums. The last-named, if not allowed to bloom during the summer and grown in the full sun, will flower well during the winter months. *Calanthes* of the *vestita* and *Veitchii* section are also very useful. From Christmas onwards many of those enumerated will continue a supply of flowers. The *Bouvardias*, if kept in heat, will bloom through the winter. Forced shrubs and Roses may be had in succession till they come in naturally out of doors. Chinese Primulas come in well about this time. The old Solomon's Seal, if taken up, may be forced in a vinery just started; it is one of the most beautiful plants grown. *Cinerarias* are good for house decoration, but not for cutting. *Dielytra spectabilis* is useful if brought on gradually.

In most gardens there are abundance of plants and cut blooms during the spring; it is in the autumn and early winter that a scarcity occurs. All those named are well suited for house decoration. During the summer, show Pelargoniums, Fuchsias, *Campanula pyramidalis* and *C. calycanthema*, Lilliums, and Palms, are what we chiefly grow. I have omitted one plant which ought not to be passed unnoticed—namely, *Dendrobium nobile*, one of the most useful of Orchids, as it may be had in bloom with a succession of plants from November to June.—FLORIST.

THE UPTON NURSERIES.

FEW towns can boast of such celebrated nurseries as Chester. The old town has many attractions, but the most interesting to all true horticulturists are the nurseries, and among them that of Messrs. F. and A. Dickson & Sons. This is situated at Upton, about twenty minutes' walk from the railway station, and is approached on one side from Upton Park, and on the opposite side by the main road leading from the city to Birkenhead. This is the principal entrance, and has a lengthy, wide, and well-kept drive, on each side of which is a border 30 to 40 feet wide, which is planted at the end near the road with hundreds of very effective Golden and Silver Hollies. Following the Hollies right and left are thousands of choice Conifers varying from 2 feet 6 inches to 5 feet in height. Numbers of each variety are grouped together, and in the background are some fine specimens of *Araucaria imbricata*. Noticeable amongst the Conifers are *Cupressus Lawsoniana erecta viridis*, *C. L. gracilis*, *C. L. spica*; *Retinospora filifera alba*, *R. pisifera gracilis*, *R. plumosa*, and its beautiful golden form *R. plumosa aurea*, *Abies Englemannii*, *A. Menziesii* and others are very effective. This drive leads to the offices, packing sheds, and glass houses; but before reaching them the drive turns to the right, and at the left-hand corner a large quantity of *Thujopsis borealis* and its variety *compacta* are very conspicuous; they are fine specimens from 8 to 10 feet high. The border to the right is planted with specimen Hollies, *Picea nobilis* and *P. Nordmanniana*, *Wellingtonias* and choice shrubs, while the front of the border is made gay during the summer with bedding plants, and in winter with Daisies, Pansies, and others.

The glass houses are very extensive, forming one of the principal features of the Upton Nurseries. During the past few years much attention has been devoted to the glass department, and in few of the provincial nurseries is there so great an extent. New houses are built every year—a sufficient guarantee that the trade in this department is rapidly increasing. The first two houses are 90 feet long each and 9 feet wide filled with grafted *Cupressus*, *Thujas*, *Retinosporas*, *Abies*, Hollies, and choice Yews, with Tomatoes covering the roof, bearing an enormous crop of fruit, the variety grown being Dickson's Improved Trophy. A house 100 feet long is devoted to the propagation of Conifers, Rhododendrons, and Clematises; and another large house has recently been erected for specimens in pots. Three or four large houses are appropriated to Azaleas of the indica type, the majority in 6-inch pots. Numbers are worked in the nurseries on stems about

9 inches high, and others upon their own roots from bushy young plants. The back of a large half-span house is filled with specimen Azaleas of pyramidal shape suitable for exhibition purposes. Several large houses are devoted to Camellias, many in 6-inch pots. However, the chief stock varies in size from small grafted plants to others 6 or 7 feet high. Camellias, like the Azaleas, are largely worked in the nursery, and the plants are in the most robust health and studded with flower buds. Another house, 90 feet long and 16 feet wide, is devoted to Heaths of the *hyemalis* and *gracilis* type, and a number of *Libonias* well grown, and the variegated *Solanum Capsicastrum* is used as an edging, which, independent of its berries, is very effective. A fine lot of *Aralia Veitchii* and *gracillima* in the same house were sturdy and fine. When subjected to stove heat these plants soon become too tall for table decoration, but under cool treatment they remain of a suitable size for a long time. A long lean-to with a northern aspect is devoted to dwarf Ferns. There is also a good collection of hardy species and varieties. Other houses are filled with Palms, *Dracenas*, and *Crotons* suitable for decoration. The stove contains miscellaneous flowering and foliage plants, including Orchids in pots, and numbers in baskets suspended from the roof. A similar house is devoted to greenhouse plants, others for *Eucharis*, and numbers of heated span-roof pits are filled with Tree Carnations, *Bouvardias*, *Epiphyllums*, and other winter-flowering plants. The propagating house is 120 feet long, span-roofed, and is fully occupied with plants, some grafted, others just rooted, and thousands in process of rooting to keep up the stock. About three thousand Vines are grown in pots, and are clean, strong, and well ripened. A small house is devoted to fruiting some of the Vines annually, so that purchasers have an opportunity of seeing the fruiting qualities of the Vines.

The fruit trees alone are worth a long journey to see, as they cover about 40 acres. Pyramid Apple and Pear trees are excellent, and many of them in a fruit-bearing condition. Anyone with a knowledge of the rearing of young fruit trees cannot fail to admire their symmetrical shape. The horizontal and fan-trained Apple, Pear, Cherry, Peach, and Nectarine trees are equally good. A long, large, span-roofed house is devoted to pyramidal Peach and Nectarine trees in pots; the wood is well ripened and in capital order for forcing. A large cool pit is also filled with Figs in pots.

Roses are another great feature, and several houses are devoted to Tea and Noisette varieties upon their own roots and worked upon the seedling Briar. About ten thousand are annually raised, and one house is full of *Maréchal Niel*; *Gloire de Dijon* and others in 8-inch pots have made a growth of 15 to 20 feet, and are quite suitable for forcing. Some three thousand strong Hybrid Perpetuals are grown in the same size pot and for the same purpose. About sixty thousand standards and two hundred thousand dwarfs are grown upon their own roots, the *Manetti*, and seedling Briar. The whole stock is remarkable for the luxuriance of the plants.

In the front of the principal houses is a geometrically designed flower garden, which is kept gay during summer with suitable plants, and in close proximity are two fine specimen Irish Yews. On each side of the walk is a border planted with new and rare Conifers, principally golden and variegated forms, *Thujaopsis argentea variegata*, *Juniperus chinensis aurea*, a beautiful golden fern; and *J. c. japonica alba variegata* are conspicuous. This border also contains many choice standard Hollies and Yews, and at the end is a magnificent piece of artificial rockwork. Near to the houses is the collection of herbaceous plants, including all the chief forms in cultivation, and also alpine plants, which are principally in pots, and number about twenty thousand.

Acres of *Rhododendron ponticum* and *Azalea pontica* are grown, and hundreds of handlights are employed for raising seedlings of the former. The seed is sown in a large frame close to the glass, and the young plants obtained are pricked out under the handlights in long narrow beds 3 feet wide, with a row of bricks each side for the frames to rest upon. Hybrids are grafted in considerable numbers, and the stock is large and good, as only the best are grown. A very large square of ground is devoted to the stock plants, and at one end is a magnificent specimen of *Araucaria imbricata* fully 30 feet in height. *Cedrus Deodara* is grown in large numbers, and some very fine plants are noticeable; they are very compact and thick, being pruned with the knife every spring. The thousands of *Ivies*, *Ampelopsises*, *Clematises*, and other climbing plants grown is surprising; all are in pots and plunged. The stock plants of the *Clematises* occupy a large span-roofed pit, which is a great advantage for obtaining wood early for grafting purposes. Many other plants, such as *Cotoneasters* (*Simondsii* is a handsome species for shrubberies), *Arbutuses*, *Evergreen Oaks*, *Escallonias*, *Euonymuses*, *Cistuses*, and *Ceanothuses*, and similar plants are kept in pots and plunged, which facilitates

their safe removal. The labour in this department is enormous, as these plunged plants cover several acres of ground.

Much attention is given to Conifers, and many acres are occupied with plants of various sizes, and in addition to the houses already mentioned almost innumerable frames and handlights are employed for their propagation. The cuttings are thickly inserted under them, and when rooted all are placed in pots until established, and are then finally planted out. Hollies are propagated on the same large scale, and the stock is large and good. The variety *Hodginsii* is more largely grown than any other; it is the best and hardiest Holly, and will stand uninjured in smoky exposed districts where the common Holly fails and dies. Yews, *Aucubas*, common and Portugal Laurels, *Berberises*, *Laurustinuses*, *Privets*, and evergreens are grown in large breadths containing many thousands of bushy plants of each. Flowering shrubs, such as *Deutzias*, *Weigelas*, *Spiræas*, *Syringas*, and *Ribes*, are grown in equally large numbers; the latter, red and white, are grown as standards, and are very effective when in flower.

The forest department is an extensive one, and acres of ground are covered with seedlings of Larch, Spruce Fir, Scotch, Austrian and Corsican Pines; the last is one of the best for planting at the seaside. Some millions of each are grown. Standard Horse Chestnuts, Elms, Oaks, Ash, Maples, Beech, and many other ornamental deciduous trees are grown of all sizes and thinly planted, so that they may develop naturally. This is noticeable throughout the nursery; every shrub and fruit tree has ample room. The soil varies considerably throughout the nurseries; in some parts it is of a strong tenacious nature, in others light and sandy.

It would require too much of your valuable space to attempt a notice of everything of interest in nurseries of such extent and magnitude, and it is only necessary to add that the whole nursery is very clean and the stock well grown. About 170 acres of ground form the nursery, and the extensive seed warehouse is situated in Eastgate Street.—WM. BARDNEY.

ABOUT CUT FLOWERS.

THE continuous supply of cut flowers is of great importance in the routine of gardening. Public rooms, bedrooms, boudoirs, and chapels are considered incomplete unless furnished with cut flowers. The period between the disappearance of the last of the Michaelmas Daisies and the advent of Snowdrops, Christmas Roses, and Winter Aconites has to be provided with as many flowers as during the most floriferous months of the year. Producing flowers and utilising them to the best advantage is, consequently, of great importance. To have flowers during a few weeks in abundance, then for a period be very scarce, is not good management; it is better to have only a small overplus and a continued supply. There is not much practical use at this time of the year in advising as to the management of plants for a winter's supply. A few notes on cutting and preserving flowers will be much more beneficial to those who are inexperienced.

The proper stage at which to cut flowers for decoration is the most important part of this subject of flower supply next to the production. A rule which I invariably follow is this—Never cut any flowers until fully developed. Flowers which open when cut, as the *Gladiolus*, may be exceptions to this rule, but trusses of *Pelargoniums* and *Bouvardias* should not be cut until fully developed. Nor is this all. Flowers are allowed to remain on the plants as long as they will continue in good condition. To gather a bloom which would last for a week or two, and pass over a bloom which would be useless in a few days, is disadvantageous in two ways. In the first place the young bloom is sacrificed at a time when it is not needed and the older bloom is entirely wasted. This system will in a short time change a sufficient quantity into scarcity. Another matter can only be settled by experience, and that is cutting more flowers than are required at one time. It is also quite possible to use very many more flowers in decorating vases than are necessary, to the detriment of the flowers, which invariably last longer when thinly arranged. Every flower ought to stand entirely clear of its neighbour. I effect this by employing foliage freely, filling large glasses with foliage, and then inserting the flowers. Water is always used, as being most cleanly and keeping the flowers in good condition for a longer period than any other medium.

For some time past flowering shoots of Ivy have been placed in the largest size glasses, the heads of Ivy flowers and many of the leaves showing above the other flowers. *Pteris tremula*, *P. longifolia* and *Davallia Mooreana* are very suitable for glasses of a very large size. The common Yew and the finer ornamental class of evergreen trees are useful after the Ivy is past. A glass arranged to-day was thickly filled with flowering shoots of several *Begonias*, amongst which were trusses of white and red *Bouvardias*. Another

of similar size was filled with the foliage of Pheasants'-foot Pelargonium, the flowers being scarlet Pelargoniums and sprays of Aster turbinellus. Small low glasses have a single truss of Pelargonium with a large leaf for setting. Camellias with their foliage, also Chrysanthemums, are much used at this season for the same kind of glasses. Large glasses can be very effectively filled with four or five Richardia blooms set on their own foliage, and a few Pelargonium trusses or red Bouvardias added to impart colour. Glasses filled with Mignonette require only a very few good flowers to give a finish. Good-sized glasses can be filled exclusively with Chinese Primroses set in their own foliage. Tulips may also be used by themselves with their leaves. Cyclamens never look so well when associated with other flowers as they do by themselves with their foliage. The spikes and foliage of Lily of the Valley make a most chaste arrangement. Violets should always be arranged by themselves, so should Roses if there is a sufficient number of them to work on. Of course these can all be worked up in mixed arrangements with other flowers, such as Orchids and other flowers which do not make effective bouquets alone. But wherever the foliage of a plant and its flowers go well together they ought to be occasionally employed in that way. The harmonising and contrasting of colours is also a question of some importance, but in this the varied tastes of employers have in a great degree to be studied. White flowers and the few yellow ones that may be used do well with any colour; dark blue or purple flowers are not suitable at this season; pink shades are best with white or yellow flowers.

All flowers, Ferns, and foliage should be cut with the longest possible stems. I do not strip the leaves off flower stems and Ferns, more especially Maidenhair Ferns; I also have a portion of the fronds inserted in the water. These last much longer for various purposes if cut and placed for two days in water before using. In hot rooms the glasses require periodically filling. When the flowers are freshly arranged the glasses should be washed before being refilled. Many flowers last a long time at this season, such as Cyclamens, Pelargoniums, Orchids, and others; these should never be left longer than three or four days without having fresh water and being re-arranged.—R. P. BROTHERSTON.



At the annual general meeting of the NATIONAL AURICULA, CARNATION, AND PICOTEE SOCIETIES, held on the 28th ult., it was decided to hold the Exhibition for 1881 under the auspices of the Royal Horticultural Society. The Auricula Exhibition is to be held on April 19th; the Carnation and Picotee on July 19th. The annual report and balance sheet for 1880 was adopted by the meeting, the Treasurer's statement showing a balance in hand for the Auricula Society of £10 15s. 1d.; that of the Carnation and Picotee, £36 8s. 11d. Additional prizes have been added to some of the classes, and a new class is added for yellow-ground Picotees.

— THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY will, it is announced, hold the following exhibitions in 1881. The spring show on April 6th and 7th, and the autumn show on September the 7th and 8th.

— IN addition to the white sport from JAMES SALTER CHRYSANTHEMUM shown at the Brixton Exhibition, a competitor (Mr. H. A. Rolt, Wimbledon), at the Kingston and Surbiton Society's Show had also a white sport from James Salter. Whether these forms can be perpetuated remains to be seen, but if they can be fixed the variety will soon become as established a favourite as the one from which it originated.

— WE understand that the CANTERBURY ROSE SHOW is fixed for the 30th June, under the presidency of the Marquis of Conyngham, and that a schedule as liberal, if not more so, than that of the present year will be arranged. The Society is a prosperous one, and we hope will continue to be so.

— WE learn with pleasure that the Royal Caledonian Horticultural Society has awarded the NEILL PRIZE for the biennial period 1878 to 1880 to Mr. David Thomson, gardener to the Duke of Buccleuch, Drumlanrig, as a distinguished horticulturist. Our readers may remember that this prize, which is so highly valued by Scottish gardeners, is derived from a fund left for the purpose by Dr. Patrick Neill of Cannonmills Cottage. He bequeathed £500, the interest of which was to be allowed to accumulate, and be awarded every two or three years by the Royal Caledonian Horticultural Society as Trustees, to a distinguished Scottish botanist or horticulturist. The Society's choice will on this occasion undoubtedly meet with general approval.

— A CORRESPONDENT, in a report that arrived too late for publication, states that FRUIT AT THE SHREWSBURY SHOW was remarkably fine. The successful competitors in the class for black Grapes were Mr. Hannagan, gardener to R. C. Naylor, Esq., Hooton Hall, Cheshire, and Mr. Milner, gardener to the Rev. J. W. Corbet, and Mr. Boody, gardener to Viscount Boyne. For white Grapes Mr. Brecse, The Gardens, Moreton Hall, Cheshire, Mr. Lambert, gardener to C. G. Wingfield, Esq., and Mr. Pratt, gardener to Lord Hill, were the prizetakers, all with superior produce. Mr. Pratt had the chief prize for a Pine Apple. Mr. Young, gardener to Sir Henry S. Stanhope, Bart., Holme Lacy, was awarded the first prize for a collection of Pears, thirty fine dishes, also for twelve and six dishes of Pears, and the same number of dishes of Apples. Mr. Rite, gardener to A. Maw, Esq., Severn House, Tonbridge, Mr. Lambert, and Mr. Bain, gardener to Sir C. R. Boughton-Knight, Bart., Downton Hall, Ludlow, were the other prizewinners in the same classes. Messrs. Juson, Abbey, Forgeate, and Pratt were among the most successful exhibitors in the Chrysanthemum classes. The Show is described as one of great excellence and admirably managed throughout.

— MR. ABRAM BASS has sent us some specimens of APPLES GROWN UNDER GLASS at Moat Bank. The Cox's Orange Pippins are the finest we have seen this year and of superior quality. Kedleston Pippin is also splendid in appearance and of good quality, the Ribstons having passed their best condition. Mr. Bass states that the only Apples that have not improved by being grown in an orchard home are the variety last named and Nonpareils.

— IN the corridor near the large conservatory at the Royal Botanic Society's Gardens, Regent's Park, there is now a pleasing display of CHRYSANTHEMUMS IN POTS, the plants being healthy, the varieties well selected, and the blooms generally of good form and substance, though, not, perhaps, up to the exhibition standard. The specimens are not formally trained but allowed a considerable degree of freedom, the number of blooms being sufficient to produce a very satisfactory array of colours. A number of thoroughly good varieties are represented, among which the following are especially notable for their excellent condition—Golden George Glenny, Queen of England, Guernsey Nugget, Antonelli, Lord Derby, Mrs. G. Rundle, and the Japanese varieties La Nympe, Elaine, Gloire de Toulouse, Fulton, and Red Dragon.

— AT THE DUBLIN ROYAL HORTICULTURAL SOCIETY'S AUTUMN SHOW, held on the 25th ult., Apples, Grapes, and Chrysanthemums are stated by the *Irish Farmers' Gazette* to have been very fine. Mr. Lombard's first-prize dish of Warner's King Apple weighed nearly half a stone, one fruit weighing 21 ozs. The Countess of Charleville, Charleville Forest, Tullamore (gardener, Mr. Roberts), secured the chief prizes for Grapes with splendid produce—he also exhibited a bunch of black Grapes weighing 1½ stone, for which the Society's medal was recommended; L. Lepoy and T. P. Hogg, Esq., for Pears with Marie

Louise, Huyshe's Victoria, and others; and Charles Cobbe, Esq., for Apples, Cox's Orange Pippin being very fine. Chrysanthemums were well represented, particularly the cut blooms. For large-flowered varieties Francis Low, Esq., Avonmore, Stillorgan (gardener, Mr. Gough), and Alexander Comyns, Esq., Ardcuaine (gardener, Mr. Jenkins), obtained the chief prizes with good collections; the latter secured the chief award for Anemone-flowered varieties, followed the Rev. Frederick Tymons (gardener, Mr. McKeogh) with a collection of Pompons.

— A CORRESPONDENT sends the following note concerning the EXHIBITION OF CHRYSANTHEMUMS AT MANCHESTER. The autumnal Exhibition in connection with the Botanical and Horticultural Society, Old Trafford, was opened on Tuesday the 23rd ult., in the Town Hall, Albert Square. The display of Chrysanthemums was the main feature of the Exhibition, as, owing to the inclemency of the weather, many delicate plants, which would otherwise have been sent to add to the beauty of the Show, were kept in the greenhouses. The collection exhibited by Mr. C. S. Agnew included thirty specimen Chrysanthemums bearing blooms of unusual size. Many of the flowers were from 15 to 18 inches in circumference. The plants from the Botanical Gardens, which consisted of about 250 Chrysanthemums, were arranged upon the platform and around the organ in a very effective manner. The other exhibitors were Mr. G. F. Lee of Timperley, Mr. Crompton Potter of Rusholme, and several nurserymen. The gold medal of the Society was awarded to Mr. C. S. Agnew of Eccles Old Road. Cultural certificates were given to a group of Chrysanthemums exhibited by Mr. John Rylands of Stretford; and to G. & W. Yates of Stockport. Messrs. Dickson, Brown, and Tait were awarded certificates of commendation for Cyclamens and Roman Hyacinths; Mr. G. F. Lee and Mr. Crompton Potter obtained a similar honour for displays of cut blooms of Chrysanthemums; while Messrs. Dickson, Brown, & Tait were commended for a show of miscellaneous plants.

— AT Hackney, too, Messrs. S. Dixon & Co. have in the AMHERST NURSERIES a fine collection of Chrysanthemums, including many of the newest varieties. The Japanese forms are particularly noteworthy, the examples of the distinct and attractive Mons. Crousse, Nuit d'Automne, Arlequin, Lutea striata, and Fleur d'Hiver being excellent.

— Mr. B. E. JAMES sends us the following note on the BRISTOL EXHIBITION OF FRUIT AND PLANTS held last week—"The Chrysanthemums formed the chief feature of the Show, and were uncommonly fine both in the health of the plants and the size of the blooms. Mr. Bradner of Bristol was the chief exhibitor, and carried off the principal prizes. Messrs. J. Garraway and Co., Durdham Down Nurseries, also exhibited largely, taking many prizes, and the Knightian medal offered by the Royal Horticultural Society. Miscellaneous collections of plants were numerous and good, while, although Pears and Apples were not very abundant, they were represented by several good collections."

— LAST week two correspondents obligingly sent us reports of the GRAVESEND AUTUMN EXHIBITION that, however, arrived too late for insertion. The following briefly indicates the chief features of the Show, which was held in the Milton Hall on the 17th and 18th ult. Chrysanthemums formed the most imposing part of the Exhibition, though fruit and vegetables were also well represented, and the entries in all classes showed an improvement over last year. In the chief class for four dwarf-trained specimen Chrysanthemums the prizetakers were Mr. R. Lambkin, gardener to J. S. Dismore, Esq.; Mr. Phillips, gardener to Capt. Jackson, Meopham; and Mr. Hollman, gardener to the Rev. Lewis, The Vicarage, Meopham; these exhibitors also carrying off several other prizes for plants. Cut blooms were good, Messrs. Phillips; Hollman; G. Pendred, gardener to C. Umfreville, Esq.; and

W. Etherington, gardener to R. Stewart, Esq., Swanscombe, securing the principal prizes; while in the fruit classes Mr. J. Wright, gardener to C. Bryant, Esq., Gravesend; Mr. Pendred; and Mr. T. Richardson, gardener to Sir James Ferguson, were the most successful. The Committee, which is wholly composed of gardeners, may be congratulated upon their satisfactory management. Another correspondent kindly forwarded a report of the Northampton Chrysanthemum Show, which also unfortunately arrived too late for insertion. The Exhibition is stated to be one of the best that has been held by the Society, the exhibits being numerous and of good quality.

MANCHESTER FRUIT AND VEGETABLE MARKETS.

(Continued from page 443.)

CARROTS first appear in the market in April; they come from France in bunches. About the first week in June they begin to arrive from Holland, also in bunches. Then come supplies from Bedfordshire. Towards the end of August large supplies come loose in trucks from Lincolnshire and Huntingdonshire, increasing in quantity as the season advances. The rate for bringing them from the last three places mentioned is from 11s. 8d. to 13s. per ton.

The Turnips supplied to the market for culinary purposes are grown almost exclusively within a few miles of it. They consist of three sorts. First, a very excellent variety raised by Mr. James Kelsall, late of Stretford, now of Picton Gorse Farm, near Chester, about fifteen years ago. During the winter two yellow kinds are most in favour—the "Orange Jelly," brought out by Messrs. Dickson & Brown, the eminent seedsmen of Chester, and the "Scarisbrick Yellow." The "White Stone," generally seen in the south of England markets, finds no favour here.

Forced Rhubarb makes its first appearance in the market in Christmas week. As the spring advances the supply increases, and large quantities are sold. A great deal is grown in this locality; but the largest quantity and the finest quality that comes from any one place is grown by Mr. Joseph Whitwell of Kirkstall, near Leeds. Mr. Whitwell has made its cultivation a speciality. The forced is succeeded by an abundance of the naturally grown, nearly every gardener who comes to the market contributing a portion. Thirty-five years ago the late Mr. Samuel Osbaldiston of Baguley was almost the only person who brought Rhubarb to the market. He grew the kind known as "Myatt's Victoria;" there was then an intermittent supply of the dwarf red kind, grown upon Preston old racecourse. But Mr. Osbaldiston was undoubtedly the first who brought Rhubarb into the Manchester market, and he also claimed a similar honour for Strawberries.

Vast quantities of green vegetables are grown in and about Stretford, where the land is very highly cultivated, for this market; and in Stretford and the adjacent parishes of Ashton-upon-Mersey, Sale, Baguley, and Timperley many Strawberries are grown. Apples, Pears, and Plums were formerly plentifully grown about Stretford; indeed, forty years ago there were no more fruitful orchards north of the Trent, but the same city which has contributed so much to the wealth of the owners of the soil around it has, with its polluted atmosphere, made sad havoc with their trees, which now "but cumber the ground," and consequently are fast disappearing under the axe to make way for the growth of things more profitable.

Celery usually makes its first appearance in the market about the second week in July. It is grown extensively upon the moss land in the parish of Ashton-under-Lyne, and is the variety known as "Lady White." This is followed by the "Seymour White," grown principally about Sale, Ashton-upon-Mersey, and Timperley; and next comes a supply from the neighbourhood of Retford in Nottinghamshire, which is called the "Grove-red." A considerable quantity is also sent from Lincolnshire. From the two last-mentioned places the supply lasts into April.

English Onions are chiefly supplied from Bedfordshire. From August to May there are frequently from 60 to 80 tons sent to Manchester from that locality in one week. The carriage costs from 18s. 4d. to 20s. per ton. Between July and April large quantities come from Holland; rates for carrying about 23s. 4d. per ton.

From September to June there are heavy arrivals from Germany. The lowest rate for bringing them is 26s. 10d. per ton. When brought from the most distant part of that country the rate is as high as £5 per ton. Of course such importations can be made only when the price is very high.

Arrivals of Belgian Onions are in their plenitude during August

and September; rates about 20s. per ton. From October to January Bordeaux sends us a considerable quantity. They are shipped in cases of about 1 cwt. nett. Cost of carriage, 2s. 1d. per case. During May, June, and July the supplies are from Portugal; and in the same months, on a limited scale, from Malta and the Levant. Rates from Liverpool 7s. 6d. per ton.

Cucumbers here not inappropriately follow Onions, and for the additional reason that, like that useful and popular bulb, they are grown chiefly in Bedfordshire. They are planted in fields of large extent, and no artificial heat being used they are not ready for the market until August, when they soon become very plentiful, and consequently exceedingly cheap. From 100 to 120 tons per week are in good seasons poured into the market, and on such occasions they are sometimes retailed at four a penny.

The English early Cucumbers always fetch a good price up to about the end of May, when they have to compete with importations from Holland.

Without separately mentioning every kind of vegetable, suffice it to say that all and every kind of herb that has come into ordinary use is plentifully and cheaply supplied to the vast community of these districts through the great central market at Manchester, and that not only does the supply diligently wait upon the demand, but by the enterprise of the British growers and the importers the supply occasionally creates the demand!

I am bound to say, however, that in speaking of "the enterprise of the British growers" I refer more particularly to those at a distance; and I trust my rural friends, the market gardeners and farmers of this locality, will not think me presumptuous and that I am travelling out of my province if I express the opinion that they are somewhat slow in discovering and supplying many of those things which are most remunerative to the grower. For many years they permitted the more heavily rented growers in the vicinity of London, who were handicapped with the cost of bringing it two hundred miles to market, to supply us with Rhubarb. It is within my own recollection that not a single Cos Lettuce, the only sort fit to be eaten, could be obtained in Lancashire but what came from beyond London, and for many years no one here attempted to grow these things; now everybody grows both. Probably nothing is more easy to grow than Scarlet Runners, and nothing finds a readier sale in the Lancashire markets. I have seen them sold this year at 8s. a bushel, but they came from a distant part of the country, the local gardener or farmer at the same time bringing a cartload of Cabbage, which sold for very little more. Brussels Sprouts are also eagerly sought for here, and bring 2s. or 3s. a peck; but the local grower of vegetables says, as he once said of Rhubarb and Cos Lettuce, "I cannot grow them," notwithstanding that few things are as hardy. A Stretford gardener's excuse for not growing Brussels Sprouts, as given to me, was "The land about my neighbourhood is too rich." Well, when we see so many fields in Cheshire whose principal crop is Rushes we certainly cannot allow the farmer or gardener who occupies them to plead the same excuse. The cost of bringing these heavy commodities from a long distance is great, and should be, if not a "prohibitive duty," at least a "protection" to the local grower, to say nothing of him being enabled to bring his goods to market in a fresh condition. Besides, the words "my own growing" have a magical effect, and seldom fail to secure the preference of the purchaser; indeed, so much are these words valued by the seller—and abused—that I once heard them used by a fellow selling Cocoa-nuts!—(*Royal Agricultural Society's Journal*).

TREE PLANTING.

OFTEN as I have written about tree and shrub planting, I am convinced it is necessary to say still more on the subject, and as the planting season is approaching I cannot perhaps say it at a better time than now. Patient repetition is undoubtedly a teacher's forte, and it is only by doing so in as varied and attractive a manner as possible that he can hope to enforce lessons hard to learn. In this instance the art of tasteful combination appears to be the hard lesson. We have not far to seek for the reason. Go into a nursery garden, large or small, during the planting season, and the eye is at once caught and fixed by Conifers and evergreens, to which a prominent position is always given. Do they not afford us symmetry, elegance, richness, warmth, and above all infinite variety of form and colour? What more do we require? And so the order is given to the exclusion of deciduous trees, and the garden to be planted lacks a charm for which nothing can atone. It is true that in winter we are grateful for the richness and warmth of our evergreens, but beautiful as they unquestionably are, and great as is their intrinsic worth, yet they gain much in effect when associated with deciduous trees, even in

winter; but in spring time, when "bursting leaflets clothe each spray," and all the brightness and freshness of vernal beauty comes back to us once more, deciduous trees develop attractions that grow upon us daily till they culminate in the full splendour of summer in "leafy June." Nor must we forget the rich autumnal tints of the decaying foliage which, beautiful as it is and admired for itself, gains much by association with the feathery forms and soft shades of green of the Conifers.

Is the force of contrast among trees fully recognised? If not, the planter can hardly hope to turn his work to the best account. It is a matter demanding careful study combined with refined taste, for startling contrast is as objectionable as tameness and insipidity. To reduce theory to practice, let us proceed to a selection of a few of our best trees for planting in combination.

Of Conifers we may take *Pinus insignis*, always attractive from its bright-toned green foliage and its dense yet free growth. *Pinus excelsa*, the Himalaya Pine; of free growth, but not so dense as *insignis*, to the rich green of which its long, drooping light-coloured foliage offers a fine contrast. *Taxodium distichum*, the charming deciduous Cypress; an elegant cone-shaped tree, with the branches and stem quite hidden in summer with foliage of a singularly soft feathery aspect, and peculiar shade of green. *Picea cephalonica*, bearing a general resemblance to the Spanish *Picea pinsapo*, but altogether of a bolder type; very ornamental, and quite distinct from any of our present selection, to which two more *Piceas* must be added—*P. pectinata*, the well-known Silver Fir, often now classed with forest trees, but none the less valuable for a place among our choicest ornamental trees, and *P. Nordmanniana*, the most elegant of all the *Piceas*, growing quite as fast as *P. pectinata*, and like it, too, in gaining beauty with increasing size. *Abies Morinda*, the beautiful Himalaya weeping Spruce, is the only one of its section suitable for our purpose; it forms a stately tree in this country, and its pendent branches impart a singularly graceful air to it. *Abies Douglasii* must also have a leading place as a prime ornamental tree, already upwards of 100 feet high in this country, the tallest of all the Hemlock Firs, forming a charming cone of soft feathery green, quite devoid of stiffness or formality. *Abies canadensis*, though not so tall, tells well in the front ranks of a clump, and is remarkable for its elegant, slender, pendulous branches. *Araucaria imbricata* growing freely in both light and heavy loams, but best of all in soil containing a plentiful admixture of fine charcoal; *Cedrus atlantica*, a lofty and fast-growing tree; the common Larch; and the Scotch Fir (*Pinus sylvestris*).

There are many other fine Conifers worthy of a place, but I have taken only those of proved excellence and of distinct appearance in order to render the selection really useful; all of them are evergreen except the Larch and *Taxodium*. Of other deciduous trees of a sufficiently bold type to blend well with them take the common Beech (*Fagus sylvatica*), the Purple Beech (*F. purpurea*), *Fraxinus excelsior* (the common Ash), to which not half enough importance is given as an ornamental tree, and yet its tall growth and beautiful foliage render it both conspicuous and attractive; the Turkey Oak, Fulham Oak, Lucombe Oak, Scarlet Oak, and Common Oak, all grand ornamental trees in deep loams, but often the reverse in shallow soils; *Platanus orientalis*, the Plane so much used in London, and which makes a fine lofty tree in a thin soil overlying a mass of sandstone; *Liriodendron tulipifera*, the Tulip Tree, with bold, handsome foliage and of lofty growth; the common Robinia Pseud-acacia; the common Lime, valued throughout the season of growth for its dense clothing of foliage, and in early summer for the sweet perfume of its flowers; Spanish Chestnut, Horse Chestnut, Birch, wild and double-blossomed Cherry, scarlet Maple, Sycamore, and Weeping Beech. The Weeping Beech is a grotesque object, only admissible into our clump as a foil, which by force of contrast imparts a charm to the most beautiful trees. To be quite accurate I should add that Lucombe and Fulham Oaks are not strictly speaking deciduous trees.

With the exception of the Weeping Beech every one of these trees is worthy of a place as a specimen. Nor need they be so much crowded in a clump as to lose their individuality. Have plenty of nursing Larches at first if you will, but plant the permanent trees from 50 to 80 feet apart, give due and prompt attention to thinning, and so will they slowly but surely develop all their charms.—EDWARD LUCKHURST.

MELON CULTURE—THE BLENHEIM ORANGE.

THE many inferior and insipid Melons so plentifully met with induce me to offer a few remarks on the culture of this fruit. I do not believe the cold frame treatment suitable for producing good-flavoured Melons, not having yet met with an example

worthy of the name grown under such conditions; but of course with the assistance of fermenting materials to heat the frames success is easily attained in summer. For early or late work hot water is preferred, as fruit of full flavour is only attained by a plentiful supply of fresh, dry, and warm air during the ripening process; hence the utility of the pipes to keep up the requisite temperature. The reverse of this is the principal cause of the flavourless samples so often met with. Until the fruit approaches the ripening point plenty of atmospheric moisture is necessary with a temperature of 70° to 80°, otherwise red spider and other insects will give much trouble, as they would also destroy the chances of securing high flavour. Most growers have their favourite varieties, but I cannot too strongly recommend a trial of the Blenheim Orange, as I am of opinion its sterling merits

will soon establish it as one of the leading Melons, and a first favourite with amateurs. It originated by crossing Hero of Bath with Read's Scarlet-flesh, and possesses the distinct markings of both parents, with an extraordinary depth of orange scarlet flesh. Its constitution is good, the plants being fairly robust, showing and setting their fruit freely. It is beautifully netted and handsome in appearance, and is well adapted for early forcing, as it ripens in a comparatively short space of time. Several practical judges have pronounced it to be the best flavoured Melon ever brought before them, and grand for exhibition.—W. CRUMP, *Blenheim*.

[We are indebted to Messrs. James Carter & Co. for the annexed engraving from a photograph of this excellent Melon, one fruit of which is enlarged and truthfully represented. This Melon

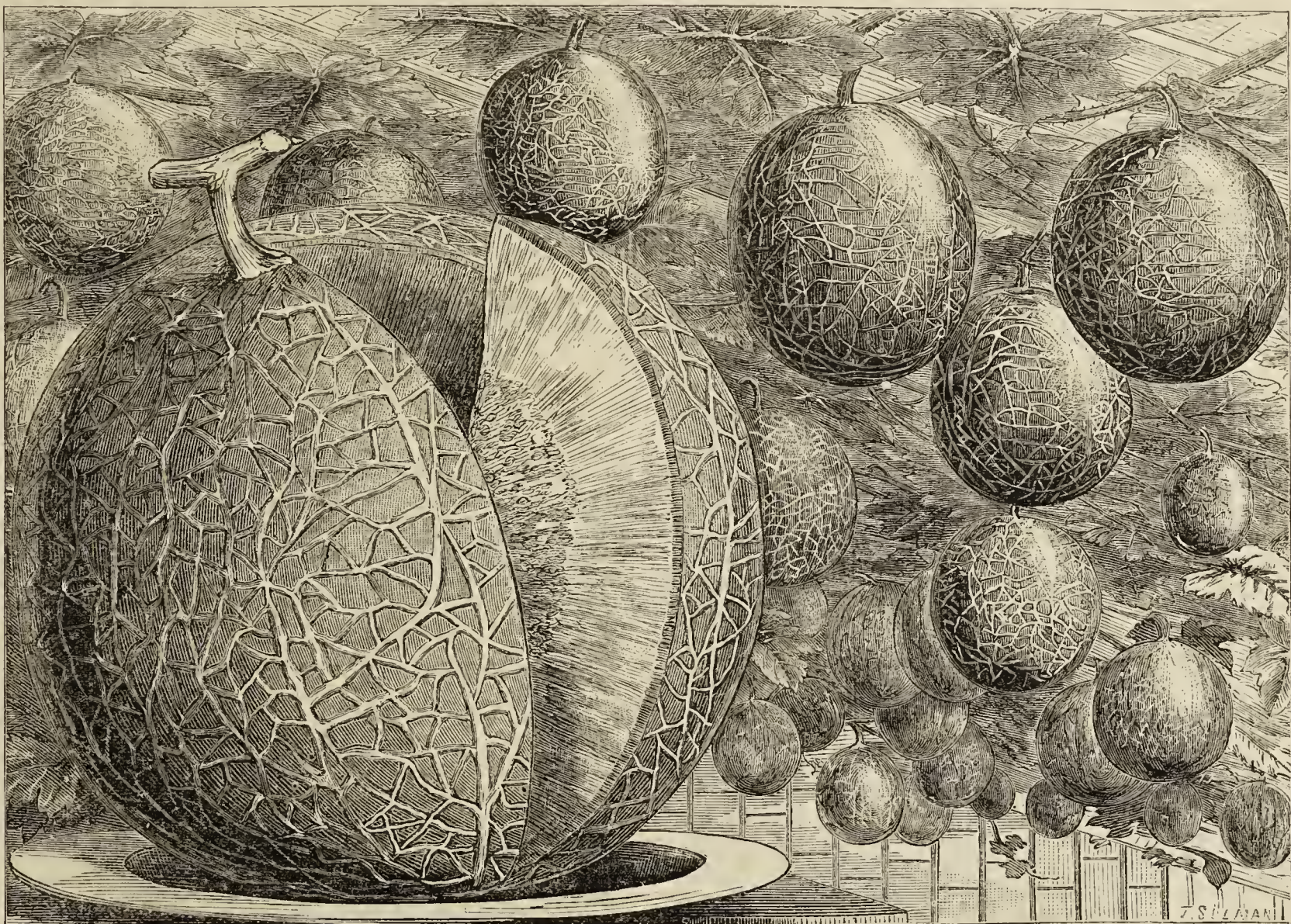


Fig. 92.—BLENHEIM ORANGE MELON.

received the first prize at the great Show at South Kensington on June the 8th, when thirty-one fruits were staged in competition. A first-class certificate was also awarded for it by the Fruit Committee of the Royal Horticultural Society on September 14th of the present year.—EDS.]

WORK FOR THE WEEK.

KITCHEN GARDEN.

AMONGST matters that may be attended to when the ordinary routine is interrupted by snow or other unfavourable weather may be mentioned the preparation of Pea-sticks, stakes in suitable sizes for various purposes, pegs for layering, and twigs for laying-in the young growths of Peaches, Nectarines, and Morello Cherries. The trimmings of Privet hedges are the most suitable; they should have the leaves stripped off, be tied in bunches to straighten, and be then placed in a dry situation to harden. Roots in store houses should have attention, and particularly Potatoes of early varieties intended

for planting in the ensuing season. Place the sets, as soon as suitable space is at liberty, in a single layer to prevent the destruction of the first growths, and to keep the sprouts as sturdy as possible. The position must be cool, but exclude frost. Remove decomposed material from pits to where it is required. Manure ground that is rather strong and intended for spring crops, but where the soil is very light or gravelly manure is better applied in the early part of the year before the crops are planted or sown. Attend to the accumulation of vegetable matter from the garden or elsewhere, taking the opportunity afforded by frosty weather to throw it into a ridge-like heap and intermingling about a sixth of quicklime, which if again turned in spring will form an admirable dressing for lawns and vegetable crops generally. Where ordinary care has been exercised in this direction much valuable material will now be fit for application.

MUSHROOM HOUSE.

Continue preparing successional beds, and as the temperature is now much reduced naturally the beds should be made thicker or

deeper, and the material be employed in a fresher and rather moister condition than early in the season. Rendering the bed thoroughly firm is of primary importance in the culture of this esteemed edible; next, the insertion of proper and good spawn when the bed is at a temperature of about 75°, a few degrees over rather than under, covering with rich turfy loam, and maintaining an equable and suitable temperature. Placing straw or hay over the bed after earthing-up will do much to secure a favourable condition both as regards moisture and temperature, but those materials must be removed as soon as the Mushrooms appear; when, if there be any deficiency of moisture, apply sufficient tepid water to render it moist but not saturated. Beds in bearing will also need to be kept damp, avoiding as much as possible applying water directly over the Mushrooms. Houses in which artificial heat is employed will require to have the walls and pathways, &c., damped frequently, maintaining the temperature between 55° and 60°. Slugs must be sought at night and destroyed; woodlice may be trapped by wrapping a boiled Potato loosely in a little hay placed in a flower pot laid on its side. Examine it every morning, and shake out the pests in a bucket of boiling water.

FRUIT HOUSES.

Vines.—To obtain ripe Grapes before the end of May forcing must now be commenced in earnest. Start with a night temperature of 50° and 55° in mild weather, but do not exceed this till the buds are growing. Syringe the rods two or three times a day, but if a bed of leaves and stable litter has been placed on the floor or border of the house, and a portion is stirred daily, a moist atmosphere will be maintained without frequent syringing. The outside border must have the needful protection from cold rain and snow, and heat may be afforded by means of litter and leaves, one part of the former to two of the latter. Borders that have been covered with straw or bracken and protected from wet will not need any other aid. The inside border should be made thoroughly moist with water at 80° to 90°. Allow the temperature to advance to 65° from sun heat, above which ventilate freely. Vines in pots that were started some time ago should have the temperature gradually increased to 60° at night when they are in leaf, 65° in the day artificially, and 70° to 75° from sun heat, admitting a little air at 70°, and if the temperature rise to 80° after closing it will lessen the necessity for fire heat. Vines in midseason houses should ere this have been pruned and at rest. The houses may be full of plants, which will not do any harm provided they are not kept warm. Whilst Vines are at rest it is only necessary to exclude frost.

Figs.—The fermenting materials for the trees in pots must be watched to see that the heat does not exceed 75°, and before introducing fresh material to keep up the required level it should be thrown into a heap and turned over once or twice. Allow the trees to advance steadily in a moist genial atmosphere, not exceeding 50° at night or 55° on mild nights, with 10° to 15° rise by day. When the leaves are showing the night temperature should gradually be raised to 55° or 60°, 65° by day artificially, and 70° to 75° from sun heat. A little ventilation should be given at the top of the house, from 65°. Syringe the trees two or three times a day, and if the weather be very cold and necessitating good fires moisture must be provided at night by damping the paths at about 8 P.M. There should not be any deficiency of moisture at the roots, and the water supplied must not be lower in temperature than that of the bed. Push forward the cleaning and dressing the trees in later houses. Trees at rest must not be allowed to become dust dry at the roots, but should have water as needed to keep the soil moderately moist.

Cucumbers.—Snow, sharp frosts, cold and keen winds have characterised the weather for some time, rendering the progress of Cucumbers very slow. A suitable and even temperature is of first importance towards success, especially at night, which is not always attainable without increasing the fires and producing an excessively dry atmosphere. Much may be done to prevent this by covering the houses with mats at night. A temperature of 60° to 65° at night is suitable, and 70° to 75° by day. Be moderate in the application of moisture at this season; damping available surfaces morning and afternoon will usually be sufficient. Water must be copiously supplied when necessary. Avoid overcrowding and overcropping, encourag-

ing the roots with fresh compost as they protrude through the sides of the hillocks. Make the compost moderately firm, and give weak liquid manure occasionally. Continue removing old foliage and exhausted growths, but do not stop very closely for the next two months. Remove all tendrils and male blossoms from the winter-fruited plants, and encourage the swelling of the fruit.

PLANT HOUSES.

Orchids.—*Dendrobium moniliforme*, *D. nobile*, *D. Ainsworthi*, and *D. Dominianum* that have completed their growth early, if now placed near the glass in the East Indian house, will flower very usefully; but they must not be kept too moist, or they will start into growth. Where it is necessary to retard the flowering of *Dendrobiums* until May they should be placed in a greenhouse temperature and receive very little water, if indeed any; but the pseudobulbs must not be allowed to shrivel. *Pleiones* now flowering should be attended to in potting as soon as they cease flowering. They succeed best in shallow pans near to the glass in the *Cattleya* house. Peat and sphagnum, with a little leaf soil added, is a suitable material. For top-dressing employ peat and sphagnum. They will not thrive in a sour badly drained compost, therefore drain efficiently. *Cattleyas* and *Laelias*, though rooting freely, will require very little water at the roots, and the peat in which they are growing should be such that will permit the water to pass away freely. The sphagnum and the roots growing outside the pots and baskets of such plants as *Aërides*, *Phalænopsis*, *Saccolabiums*, and *Vandas* will require frequent dampings, attention being given to the atmosphere by pouring water on the benches and paths every morning. Very little air will be requisite now, and it must be given below the plants, so as to have its harshness taken off before reaching them. *Cypripediums* and *Cymbidium*s require a good supply of water at the roots. *Odontoglossums* should never be allowed to become dry. They delight in a cool damp atmosphere, and should have a light syringing overhead on fine mornings; but be careful to avoid drip upon the young shoots, not only of these but all *Orchids*. The glass should be kept thoroughly clean, also the woodwork. The temperature of the East Indian house must be kept at 65° by day and 60° at night, or a little lower; Mexican house, 60° by day and 50° by night; the cool house being kept at 50° by day and 40° to 45° at night, allowing in each case a few degrees advance from sun heat.

TRADE CATALOGUES RECEIVED.

The Lawson Seed & Nursery Company (Limited), Edinburgh and London.—*Catalogue of Trees and Shrubs*.

MacKenzie & Moneur, Upper Grove Place, Edinburgh and Glasgow.—*Illustrated Catalogue of Horticultural Buildings and Heating Apparatus*.

H. & F. Sharpe, Wisbech.—*List of Seed Potatoes*.



** All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondence.—Several valuable communications which have been obligingly sent us for all the departments of this Journal cannot be inserted this week, and replies to various correspondents whose letters arrived on the eve of our going to press will appear in our next issue.

"Growing Roses Out of Doors" (Amateur).—The book to which you refer as bearing the above title was written by the Rev. O. Fisher, and is published by Messrs. Bradbury, Agnew & Co., Bouverie Street, London.

Insects on Pelargoniums (W. Begbie).—We can discover no traces of any insect except aphides on the leaves you sent, and even those are dead, the "white flies" you mention appearing to be simply the dried remains of the aphides.

Dark Climbing Rose for Greenhouse (L. W.).—Duchess of Edinburgh (Veitch), crimson, is the darkest in colour of Tea Roses, but it is not a climber. Cheshunt Hybrid has beautiful finely shaped flowers, though not deeper in colour than cherry earmine. The plant is of vigorous growth, and would form a fitting companion for *Maréchal Niel*. Those with *Innocente Pirola* are the three best for training to the roof in greenhouses.

Address (Constant Reader).—The address you require is M. E. Verdier, Rue Clisson, Paris.

Fungi and the Potato Disease (C. D.).—As so much has appeared in our columns lately relative to this subject it is not necessary to publish your letter, especially as it pertains to a phase of the question that has already been discussed.

Seed from Vegetable Marrow (W. W.).—Let the fruit hang in the warm room until the rind is quite yellow, then cut it open and separate the seeds from the pulp by washing them as frequently as necessary; those that sink to the bottom of the vessel will be sound, those that float unfertile. When they are quite dry store them in a paper bag.

Cocoa-nut Fibre for Calanthes (Rus.).—Useful as this material is for propagating purposes, it would not be quite suitable for growing your Calanthes in, as they need a more substantial soil. A compost of fibrous loam, leaf soil, a small portion of dried cow manure, with sand and charcoal to render the whole porous, is what you require to obtain these useful Orchids in good condition.

Bees in Conservatory (Bertie).—The structure is not large enough for a hive of bees if it is a moderately strong one. The bees would render the structure unpleasant to timid visitors and would shorten the duration of the flowers, and we doubt also if the bees would be greatly benefited by being placed in the house; some of them would be certain to escape through the ventilators, and would not easily find their way to the hive again.

Heating with Sanitary Pipes (W. W., Otley).—If you send 3½d. in stamps to the publisher and ask him to send you No. 985 of the Journal, you will find a system detailed by which some vineries at Sedbury Park are successfully heated by this method. Mr. Jowsey, the gardener, has secured many prizes with splendid Grapes from the structures referred to. A brick flue of at least 6 feet in length should connect the pipes with the fire. Mr. Matthews of Weston-super-Mare, who is an excellent authority on the subject, has stated in our columns that "unglazed sanitary pipes made of fire clay are better than glazed pipes for forming flues, as they produce a better heat and are not so liable to crack as are glazed pipes." Mr. Peach, who has had much experience with this subject, also states that glazed pipes or socketed pipes should not be employed for heating.

Gas Lime for Garden (D. H.).—It is injurious to all crops, and ought only to be applied to the ground when it is being dug in the autumn, so that several weeks elapse before the crops are sown and planted. It is inimical to grub life generally, and if fresh from the kiln a large handful to a square yard will be a sufficient dressing yearly. Employed in the manner indicated it is safe; but it is not safe as a top-dressing applied when the crops are growing, nor for mixing with the soil immediately before planting. Soot and salt would be good for your garden; and continue your practice of using all the burnt refuse you can obtain, spreading it in the drills in which you sow the seeds, and in the trenches when you plant Potatoes.

Destroying American Blight (L. J. K.).—If you dissolve 6 ozs. of soft soap in a gallon of water, adding a wineglassful of paraffin, and apply the mixture to the trees with a brush, rubbing well into the crevices of the bark, it will destroy the insects. Any portions of the trees that are seriously affected may be dressed with pure paraffin, but it must not be applied to the buds nor to the smooth bark, nor so freely as to drain from the trees into the soil. The soft soap and paraffin must be thoroughly mixed together, and the remedy will be safe and effectual. After your Roses are pruned dress them with a mixture of lime and sulphur with a little clay added to make the "paint" adhere to the stems. In the summer syringe them frequently with a solution of soft soap, and it will to a very great extent prevent the mildew appearing.

Soil for Orchids (Ignoramus).—The Orchids you mention are no doubt potted in a proper manner if you have received them from a nurseryman. They all require very good drainage in the pots, which should be filled about two-thirds of their depth, and a compost of sphagnum, peat, and finely broken potsherds, but the Cypripedium succeeds better if a small proportion of light turfy loam be incorporated with the soil. The *Oncidium* we do not know; have you not mis-spelt the name? Probably it is either *O. pelicanum* or *O. phymatochilum*. The other plants would all succeed in a compost of one-third turfy loam, a similar quantity of peat and leaf soil, sufficient sand and small pieces of charcoal or broken potsherds to keep the soil open, and in the case of the first-named plant, a small proportion of well-decayed manure may be added.

The Hand-Flower Tree (Inquirer, Surrey).—From your description we presume you refer to the Hand Plant of Mexico, *Cheirostemon platanoides*. It is remarkable for the peculiarity of the flowers, which have no petals, and are furnished with a large angular calyx resembling a leathern cup, in the centre of which rises up a column formed of the united filaments, bearing five narrow anthers, which are curved at the top, and with incurved style in the centre, the whole having the appearance of a hand. The tree attains the height of 30 feet, and the first specimen discovered was found near Toluco, in Mexico, where it was held in great veneration by the natives. Forests of it have since been found near Guatemala, whence it is supposed to have been originally obtained.

Digging amongst Fruit Trees (J. S.).—It is not unusual for trees to grow freely when the ground is dug regularly and manured for under crops, and old trees also bear well under such treatment, as may be seen in some of the market gardens near London; but we certainly do not advise you to continue the practice of digging "quite up to the stems as if no trees were on the ground." Further, as your first object is to have satisfactory trees, we should not dig amongst them at all if your ground is light and rich as it appears to be, and they will soon produce wood less luxuriant than before and essentially of a fruitful character. You may spread the soot on the land as you propose, and a liberal dressing of lime would be very beneficial. Keep the ground free from weeds by frequent hoeings during the spring and summer months.

Fruit Shrivelling (Amateur).—The room is too warm and dry. No fire is necessary except for excluding frost, and even this can be kept from injuring the fruit by thick coverings of dry clean straw except during a blast of great intensity and long duration, and even then a little fire heat with much covering is preferable to much fire and no covering. Fruit cannot be kept too cool provided it is safe from frost, and a dark room is preferable to a light one. Fruit, however, such as dessert Pears and Apples, do not ripen so well in a low as in a genial temperature; and if a few at a time are placed periodically in a warm structure, not only will the flavour be more fully developed, but each variety may be had in use over a very much longer period than if left in the fruit room to ripen naturally.

Heating Greenhouse (F. M. S.).—There is no necessity to have more heating power than will exclude frost in the severest weather, a temperature of

40° to 45° artificially being quite sufficient for greenhouse plants. We should prefer having the pipes on both sides of the house about a foot from the sides beneath the staging; but as you object to this on account of crossing the end, where we presume there is a door, you may have the hot-water pipes on one side only, keeping them 15 to 18 inches beneath the stage, at which distance the plants will not be injuriously affected. Two 4-inch pipes will be sufficient—i.e., a flow and return, and they should be fixed "side by side" in preference to "one over the other." The flow rising to the end of the house, and the other declining from that point to the boiler, will afford the needful flow and return—i.e., circulation of the water. We should, as before stated, prefer taking the pipes round the house, say a flow to the doorway, and then dipping so as to cross to the other side, and continuing it as a return to the boiler, which may necessitate sinking a stokehole to have the return socket of the boiler at a proper level to receive the return pipe.

Protecting Dwarf Roses (Goosequill).—As your Roses are so liable to be killed by severe frost we should not hesitate to mulch above the lower buds, and should have no fear of the plants "damping-off." Dried fern is excellent for packing round the stems; failing this use short straw, littery stable manure, or tree leaves, covering the soil thickly with shorter and richer manure. We do not think your plants are killed. Protect them as you propose, and they will probably grow in the spring. If the frost proves very severe and of long duration, fresh covering must be added from time to time as needed. When Roses are planted a safe rule is to cover the roots the same depth as they were before removed from the nursery, and mulch the surface with manure. The buds on Manetti stock should, as a rule, be just level with the soil; if the plants are a year old, as they usually are when removed, the budded portion should be just below the surface, no portion of the stock being visible. We are not sure, however, that we quite comprehend your question—"How deep to plant dormant buds when transplanting them?" but we will readily give you further information if this reply does not meet your case.

Asparagus Dying (J. Bilton).—We are not at all surprised that the roots which you purchased and planted "immediately after the frost last year died," especially as you had them in "a cellar for a month," waiting for a favourable opportunity for planting. In all probability the majority of them would have failed to grow even if they had been planted as soon as you received them. Asparagus should never be planted during the winter months when the ground is cold and wet. The spring is the proper time for planting, just as growth commences. If the soil is in good condition during the last days of March or the beginning of April and growths are produced an inch long, almost every root will grow if carefully taken up and planted. The soil should be free and well pulverised, and trenches should be formed wide enough to admit the full spread of the roots; these should be placed so that the growing crowns are about 2 inches from the surface, leaf soil or other light compost being worked well amongst the roots and a good watering given with tepid water. If the work is carefully yet expeditiously done, without any drying of the roots or breaking off the growths, success is almost certain to follow. We prefer planting when the growths are long enough for the tips to just protrude through the surface, then, with subsequent mulchings, we do not lose one plant out of a hundred. Prepare the beds now, and plant in the spring, taking special care that the roots are not even slightly dried during removal and transit.

Repotting Vines (J. P.).—If the Vines are strong and in moderate-sized pots filled with healthy roots a shift into larger pots is desirable. The time for repotting is in the spring when the young growths are about an inch long, and the work must be done with great care, as the growths are easily broken off. When repotting you must be careful to note that the soil in the centre of the ball of roots is sufficiently moist, and the soil to be used—turfy loam with a third of decayed manure and a sprinkling of bone dust—must also be moderately moist, but not wet. Remove the crocks from the base of the soil, but do not disturb the roots, and pot firmly, leaving sufficient space for a little after top-dressing, and for holding sufficient water to penetrate the mass of soil. If the Vines are in very large pots removing a portion of the surface soil and adding fresh rich compost would probably be sufficient, with otherwise good culture, for insuring a good crop of Grapes. When Vines are repotted in the manner indicated care and good judgment are requisite in watering. We saw last year the advantage of repotting Vines in an experiment that had been made to test the point; but the Vines were in charge of an excellent gardener—Mr. Bardney; with one less competent the results might not have been similar. If you repot the Vines and they do not answer your expectations you must not conclude that the system is wrong, but that you have erred in your mode of carrying it out.

Chrysanthemums in the Open Air (J. B.).—If you plant Chrysanthemums in early spring just when fresh growth commences in the rich deep soil of a sheltered border they will grow and flower well, but whether they will produce exhibition blooms depends on the season, the varieties grown, and your skill as a cultivator. The plan most likely to be successful would be to insert cuttings or slightly rooted suckers now singly in small pots, and plunge them in ashes or cocoa-nut fibre refuse in a cold frame for the winter. With good management you would have sturdy well-rooted plants in spring. Then if you dig a trench a foot wide and 18 inches deep at the foot of a wall or fence, fill the trench with rather strong loam with a third of its bulk of manure mixed with it, plant a foot apart, train the plants with single stems and secure them to the wall, water them sufficiently during the summer and mulch over the roots in hot weather, thin out the buds as soon as they are visible, protect the expanding blooms from wet and frost, and prevent injury by earwigs at all times, you may perhaps produce blooms of exhibition quality. We have seen very handsome blooms produced by this mode of culture; but success depends entirely on the skill and attention of the cultivator. Cuttings struck in gentle heat in March or April and duly prepared for planting-out in May answer equally well. But possibly you have not a heated frame in spring, hence our advice to insert rooted suckers as soon as you can obtain them in the autumn. Three or four blooms will be sufficient for each plant of the incurved varieties, but the Pompons may produce several flowers; still many of the buds should be removed, three of the earliest on each stem being retained. The plants will not require stopping, as each stem will naturally break into three or four flowering growths towards the end of summer.

Pruning Apple Trees (J. S.).—When Apple trees are very much exposed to strong winds we do not consider it an advantage to have the heads very thin and open; but if the trees are in the form of an orchard, or are in a sheltered position, a thinning-out of the branches would no doubt be advantageous. The work requires to be done with judgment. As a rule no branches should be shortened, but a portion of those that cross each other should be severed close to the main stems from which they spring. A small-toothed saw will be suitable for the work, afterwards smoothly paring the edges of the bark and cut surfaces with a sharp knife. The most healthy and promising branches should be retained, removing those that are in any way faulty. It must be remembered that cutting

branches off fruit trees is usually followed by half a dozen fresh growths near the severed parts, and if these are permitted to extend the trees are soon more crowded than before; hence our advice not to shorten the branches. The growths issuing from the main stems are easily disposed of in the spring by rubbing them off, not cutting them, when they are an inch long in the spring. This is an important corollary of pruning, and is not sufficiently attended to. We have seen some trees spoiled by pruning when afterwards neglected in dis-budding, and, on the contrary, have seen many fruit trees greatly benefited by the judicious use of the saw and knife in winter and the thumb and finger in spring. The present is the time for thinning the trees; and so far as we understand their condition from your lucid letter we think they would be benefited by the treatment suggested, provided, as we before observed, they are not growing thinly in a very exposed position.

New Roses (J. B.).—It is doubtful if any of the Roses you name will be eligible for competition in the class for new Roses of 1878, 1879, and 1880. Charles Baltet, Edouard Dufour, Madame Chevreton, and Mlle. Marie Verdier are varieties of 1877. We do not know the dates of introduction of Mrs. Berners and Prinee de Joinville, and we are not acquainted with the variety "Madame Levet." Perhaps some of our readers can supply the information. No twelve Roses that can be named, only one plant of each being grown, would enable you to stage twelve exhibition blooms on a given day in 1881, and especially since they have to be purchased and planted. We name some good varieties that will be eligible for the class in question, but we must inform you that even if you purchase all of them your chance of winning a prize in the class next year will be extremely remote. If you plant them now in good soil so as to have strong plants during the summer, and also insert buds in Manetti and dwarf Briar stocks, you may succeed by obtaining blooms either from the cutbacks or the maidens in 1882 that would enable you to achieve your object. Twenty-four good new Roses are Dr. Sewell, Duchess of Bedford, Countess of Rosebery, Harrison Weir, Pride of Waltham, Crown Prince, Duke of Teek, Mrs. Jowitt, Penelope Mayo, Dr. Hogg, May Quennell, Mr. Laxton, Robert Marnock, John Bright, Gloire de Bourg-la-Reine, Jules Finger, Henriette Petit, May Quennell, Glory of Cheshunt, Mrs. Harry Turner, Marquis of Salisbury, Masterpiece, Dean of Windsor, and Charles Darwin. You had better add to rather than diminish the number if you intend carrying out your project, especially as a few of those named may not be admissible in a class for "New Roses" in 1882.

Names of Fruits (Owen).—1, Like Bringewood Pippin; 2, Red Ingestrie.

Names of Plants (P. R.).—The Rose you have sent is not Devonensis, it more resembles the China Rose Mrs. Bosanquet. We do not undertake to name Roses nor varieties of any florists' flowers, only species. (H. H.).—1, *Asplenium viviparum*; 2, *Phlebodium aureum*; 3, *Adiantum cuneatum*; 4, *Adiantum trapeziforme*. (Mr. Owen).—1, Too withered, flowers also needed; 2, *Sedum aizoides variegatum*; 3, *Selaginella uueinata*. (J. W.).—The plant is a *Tydaea*, but as it was only accompanied by one flower, and that much crushed, we are unable to give the name of the variety, nor do we undertake to name varieties of flowers, only species; still we give the names of those that we can readily recognise. (H. A. H.).—The fragments of stems you send are insufficient for us to determine the plant to which they belong, but if you forward flowers or a description of the habit of the plant we may be enabled to name it. (Field).—The shrub is *Garrya elliptica*. The Fern is *Aspidium aculeatum*.



POULTRY, PIGEON, AND BEE CHRONICLE.

THE CULTIVATION AND GROWTH OF MAIZE.

THE cultivation and growth of this crop has of late years attracted little attention in this country, although in various foreign lands it is as much, or even more, thought of for profitable cultivation than at any former period. In referring to the experiments and facts relating to its growth in England we shall have to go back for a long period, and even then it assumed somewhat the character of amusement and experiment in the hands of amateurs. Whatever may be its merits the ordinary occupiers of land did not believe that it was of much advantage to them. It should, however, be understood by the home farmers that cultivating Maize in this country is very different from that adopted in America, where the climate and other circumstances are so different from those of England. It must also be remembered that in case of its being cultivated in the agricultural districts of this country to any important extent the same varieties of Maize would not ripen in our climate, which in America furnish so large a portion of its produce. Enormous quantities are imported which stand high in the estimation of feeders of stock, whether of cattle, sheep, pigs, or horses, and the quantity usually consumed here is extremely large, and is sold at such a reasonable price as to greatly depreciate the value of nearly all the cereals and pulse crops commonly grown in this kingdom. The attempts to grow Maize, however, in this country refer chiefly to particular

varieties, which ripen very early, and have been found in favourable seasons and hot dry summers to not only ripen the grain, but to yield a good acreable produce.

The first man whom we can learn attempted the growth in England was the celebrated politician William Cobbett, who had two ears of corn brought to England by his son William from a gentleman in the province of Artois in the north of France, who had cultivated it in a small way for many years. This was in 1826, and induced Mr. Cobbett to import the early variety of corn from New York in 1827, selling the greatest part of it and planting the remainder, and he continued to grow it for ten years in Hampshire. After having recommended its growth to the public he sold considerable quantities every year, and found that the more frequently he grew it from his own saved seed the earlier it ripened. In offering it for sale in this country it was called "Cobbett's corn," and we were induced to plant some on our farm in the year 1828, and occasionally since that time, considering that if it answered for growth to produce corn at all it must be upon the system of interculture, somewhat in the same way that we grew Beans and Mangolds—in alternate lines; we therefore in the first instance planted three sorts of crops in alternate rows to prevent loss and disappointment in the event of the Maize failing. These crops were grown upon the stretch at 2 feet apart upon a capital piece of land, good loam on brick earth. The result was an enormous produce as a whole, one portion being Mangolds, which had just about that time began to attract notice amongst agriculturists, and another portion Potatoes, which proved a good crop; but the Maize did not ripen. It, however, always proved very good provender when passed through the chaff-cutter—stalks, leaves, and green cobs all together. We believe that our Maize did not ripen because the land was too good and loamy, for in all those cases which have come to our knowledge of the corn ripening well and early it was grown upon light, dry, and warm soils. For some years after the continuation of our experiments we saw but little of Cobbett's corn, except statements published in his weekly "Register" of the period up to the time of his death, which occurred in 1835.

In 1849 the question of growing Maize was again taken up by a Mr. Keene, who introduced a variety to public notice under the title of "Forty-day Maize." This gentleman, in order to give publicity to his ideas and its advantages, read a paper at a local farmers' club in the south of England on the 22nd of October in that year on the cultivation of Keene's "Forty-day Maize," and said, "I now lay before the Club numerous specimens of Indian corn and Forty-day Maize in cobs, plants, and shelled-out samples grown in America, in Barbadoes, the south of France, Middlesex, Hampshire, and other places. The Forty-day Maize which had been cultivated by two gentlemen in conjunction with myself near to Southampton was decidedly the best of the whole lot, whether as regarded the thickness of the cobs or the size and quality of the corn, and these samples, as well as those from St. James's Park, London, are thoroughly ripened, and the cobs are regularly garnished with grain from base to apex. It appears that this variety of Maize is cultivated chiefly in the Basque provinces of Spain, where it is looked upon as not far inferior as a diet for the poor to a crop of Potatoes, and they have a name for it bearing no analogy to any other European or American appellation, for in their tongue they called it Arthoa. In Spain there are many varieties of Maize—about 130, and the qualities are nearly as various as the varieties, so that they are applied to various purposes—one being retained for human food, another for cattle, a third for poultry, and so on. It is generally sown from the 15th of April to the 10th of June in Spain; but the best time in England is from the 10th to the 25th of May. That is, in fact, the time for sowing in the Pyrenees, the climate there being much like that of the south of England, and the seed ought not to be put into the ground before that time in consequence of late night frosts." Mr. Keene further stated the seed he had brought with him to England was not of the variety usually grown in the Pyrenees, for it had been his study to produce a variety of Maize by hybridisation and otherwise in order to obtain early ripening, which is so desirable in an inferior climate. It is, however, found that the Forty-day Maize bore the often severe frosts of our springs better than any other variety with which he was acquainted, for it had been grown that year (1849) with success under considerable difficulties at Putney in Middlesex; in St. James's Park, London; and on two estates in South Hampshire. The cobs which he exhibited were produced in the latter district in a field of corn as fine as any he had ever seen in the province from which he brought the seed. These samples, compared with those produced in the Pyrenees last year, were superior to the cobs, which were there considered as excellent samples.

As we have taken up the subject in the interest of the home

farmer we must call his attention to a few leading points, not only in the cultivation but the uses and value of the produce. The first point is the soil, for it is upon sharp sand or gravel soils only that we can obtain a crop of ripe corn even in our best and driest summers; and in such seasons where either pulse or Lent corn would fail on account of drought, yet Maize will produce about 50 bushels per acre on the average if we can obtain an early variety. We have seen this year samples of the ordinary round and yellow variety grown and planted on the 18th of May upon thin gravel soil in South Hants, and about half of the cobs were well filled and the corn quite ripe, but the remainder only partially ripe; the stalks were between 6 and 7 feet high, with gross succulent stems and luxuriant foliage. Now this is not quite satisfactory, for if we cannot ripen the whole crop we had far better turn our attention to the use of the stalks, leaves, and cobs in the green state, to be given to dairy cows, horses, &c., in fact any stock are exceedingly fond of it; and when it is cut into chaff the thick stalks, cobs, &c., are available for all animals of the farm, but especially dairy cows, as it will produce butter almost equal to the best grass feeding. There are two points to be considered if we grow it in alternate lines with root crops. The crop should ripen early, but with planting for a fodder crop only; it should be used commencing at about fifty days' growth, for we cannot hope to obtain the forty-day Maize, the meaning of this denomination being that it comes into feather or flower at the end of forty days. This is a very quick growth, for as a fodder plant we know nothing to yield a heavy crop of similar value in so short a time and upon so poor a soil as the round yellow variety, obtainable at any of the seedsmen. It is also a good fallow crop. The seed is usually dibbled or drilled on the flat at 18 inches apart and then horse and hand-hoed once. If planted in the middle of May it would come off as a fodder crop during July in time for sowing Turnips after it, the land being also clean and mellow for any crop which may succeed the Maize. Peruvian guano, or nitrate of soda and superphosphate mixed with ashes and applied by the drill, would be the best manure, at a cost of about 21s. per acre. Two bushels of seed per acre is sufficient. If we could be certain of obtaining the true forty-day Maize we may be sure of a valuable produce in alternate husbandry, because if the lines of Mangolds, Potatoes, or Cabbage were planted 4 feet apart and the Maize at the same distance in alternate lines, the Maize may be left for seed or pulled for green fodder in a cold unfavourable season like 1879. Mr. Keene's professed object in introducing the forty-day Maize was to supply the deficiency caused by the loss of the Potato crop in 1877 and 1878, stating that the green cobs when properly cooked would furnish a vegetable well calculated to take the place of the Potatoes; therefore, by growing both crops in alternate rows we may expect a full and valuable crop, as more room in growth is given for the late sorts of Potatoes, besides the probable protection against blight in the Potatoes furnished by the Maize stalks and foliage. The earliest variety of Maize may probably be obtained of Vilmorin & Co., seedsmen, of Paris.

WORK ON THE HOME FARM.

Horse Labour.—Great impediments have again occurred to the sowing of Wheat, for although most has been done on the dry soils, yet upon the flat-lying cold land there is a considerable portion not sown. On dry soils the land was in a good state from the 1st to the 13th of last month, and the sowing went on without hindrance. The heavy land, however, was not in condition until the 8th ult., giving therefore but five working days in which the sowing could be done. On the 14th ult. and since, up to the time we are writing, frost or heavy storms have prevailed. As the period is now fast approaching when it will be too late to sow Wheat upon heavy land we fear that in some districts large breadths will remain unsown until after Christmas, and will then probably be held over for cropping with Lent corn, so that now we have the prospect of another adverse season for what is termed Wheat soils. It is now of great consequence to decide what is best to be done upon very large tracts of land on which autumn fallowing had been commenced, but could not be completed owing to the flooding rains which have prevailed. We notice on many farms that the grass and weeds have been brought to the surface by steam culture and otherwise. We cannot advise the home farmer to plough this in by deep fallow ploughing, and unless a great change of weather should occur to enable the lumps of grass to be forked together and carted away the best way will be to plough the land very shallow with a double rafter or back stitch furrow, or otherwise a single rafter furrow, so that the grass may still be retained on the top, to be dealt with on the occurrence of the first dry weather in the spring. The land can then be made cleaner, whether intended for Barley or early roots, than in any other way; for in case the land is worked only with the scarifier or lifting drag it will be all the better, whether the spring should prove dry or rainy.

Hand Labour.—Upon all strong or hilly land subject to the wash of heavy rains since the Wheat has been sown men should occasionally look to the water furrows, and clear them of any sand and earthy

sediments, so that the flood water may be kept in its proper channel. Irrigated meadows must now be attended to by the drowner, as the man is called in charge of water meadows, so that all the flood trenches and drawing drains may work freely, for at this time of year the rains bring down from the hills alluvial deposits of great value to the water meadows. Some of these meadows which are not irrigated often receive advantage from flooding after the waters subside; but in order to receive the full benefit of flood water, trenches should always be kept open, so that the water may pass off quickly. In meadows where the grass is coarse and Rushes prevail, these should at this time be cut over with the scythe and removed, in order that the grass in the spring may make an early growth. If it is preferred to make the cattle, such as young stock or dairy cows, eat down the rough grass they will do better, and eat it with more relish to themselves, after an application of a full dressing of manure salt, fishery salt or kainit. Another dressing of the same kind in the month of March and again after the hay crop is removed will be likely to destroy the egg or entozoa of the fluke, for we know that grass growing on the salt marshes is the great antidote for the rot in cattle and sheep. We also caution the home farmer against allowing sheep to feed in the brookside meadows after the subsidence of the flood water, because we have seen cases of sand rot which have killed the sheep, and on a post-mortem examination the livers have been found of a light brown colour and very hard. For nearly all kinds of stock the crop of Champion Drumhead Cabbages will be valuable up to Christmas, and being very abundant this year cattle may receive them on the pastures where the soil is dry. Sheep, also, especially the in-lamb ewes, may have them on the pastures. This is better than folding off the crop on the land, because the quantity can be better regulated and the grass also be eaten at the same time—a matter of great importance to breeding ewes, and is far preferable to giving them Turnips or Rape in the folds. There is this year a very short number of the horned Dorset and Somerset ewes bought for early lambing in all the home counties and southern districts, in consequence of so many of these flocks having been destroyed by the fluke rot. Most of the flocks which are healthy are now lambing down, and generally the lambs are reported healthy. Some of the earliest of these which fell in October are now strong, and together with the ewes are in full feeding upon early Turnips cut with Gardener's cutter, and fed in troughs with cake and bean meal mixed. The lambs running in advance of the ewes should be fed in troughs with white Carrots or Cabbage passed twice through the cutter, and have cake meal strewn over the roots. Twice cutting gives small pieces like dice, which the young lambs can take up and eat without waste; at the same time they should receive the finest Dutch Clover hay made from the second year's growth, and if it has a pleasant aroma the lambs will begin eating it much earlier than any coarse hay like broad Clover. Saintfoin, too, is good if cut young, otherwise it is too coarse. The fattening cattle in the boxes or stalls will now be kept on winter feeding at full allowances for roots, as well as cake and sweet straw; but we caution the home farmer against feeding them with hay, for if the animals have 4 or 5 lbs. of cake and 2 lbs. of bean meal daily strewn over the cut roots hay is quite unnecessary, and likely to disturb their health. Hay-feeding will show no profit, whereas straw will furnish a clean bill of health and profit likewise, especially if the roots given are ripe and such as Cabbage, early hybrid Turnips, or Carrots, the quantity varying from 40 lbs. to 60 lbs. daily according to age and size of the bullocks. Where straw is plentiful it is best given loose in the rack, and any waste will furnish litter for the boxes or pens; if it is scarce it may be cut into chaff and given in admixture with cut roots, cake, meal, &c.

TO OUR READERS.

WE give to-day a full report of the Birmingham Show, and we take the opportunity of announcing, in compliance with the wishes of many subscribers, that with the new year we intend to devote more attention to our *Poultry Chronicle* without prejudice to our other departments; and we have engaged Mr. A. Comyns, B.A., LL.B., well known in the poultry world, to aid us in this department. The principles upon which we have endeavoured always to conduct the Journal are well known to our readers. While we invite the discussion of matters of interest, and shall give the utmost liberty to writers, we shall rigidly exclude anything of a personal character. We appeal to such of our readers as are interested in the subject to give us their aid in making these columns valuable and entertaining. No effort on our part shall be wanting to make the reports of the really leading shows as ample, accurate, and readable as possible. Of the smaller shows we shall give notes as occasion requires, but we cannot afford space for the full prize lists of every show that is held throughout the year. Many of these are of merely local interest, and we feel that we shall better consult the wishes of our readers and our own advantage by devoting our space to original matter of a general kind. Our valued correspondent "C." we need hardly say, will continue to contribute to our columns. With his help and that of other old friends, and the hosts of new ones who, we trust, will assist us, we have every confidence that the *Poultry and Pigeon Chronicle* will become the leading authority on all

points relating to the subjects dealt with, a guide and help to fanciers, and a medium for good in its special sphere.

BIRMINGHAM POULTRY AND PIGEON SHOW.

THIS the oldest, and perhaps still the first of the leading shows, commenced on Saturday last. The entries numbered 3062, being an increase of 164 over last year. The increase was chiefly in the Bantams, which numbered 105 as against 70 last year; the Ducks, which were 163 as against 137; and the Pigeons, which were 815 as against 702. The old wooden pens are now entirely discarded, and the birds were well arranged in wire pens, with the heavier varieties on the lower tier. The weather was singularly propitious, and light for judging the birds all that could be desired. The names of the owners of the prizewinners and other birds we think worthy of special note are given in brackets in our comments on each class, the residue of the birds noticed by the Judges being enumerated at the foot of our comments on the various classes.

Brahmas.—Dark cocks.—A strong class of twenty-eight. First (Lingwood) fine in size, shape, head, and fairly feathered, without hocks; colour moderate, tail a trifle mean; an easy win. Second (Miss E. Russell) a very square-set, shapely, hocked bird, uneven in comb and a little yellow. Third (Norris) another very solidly made one, heavily hocked, rough in comb, and showing a little white in tail. All three winners had great width and depth. Fourth (Joyce) the Palace cup bird and the winner here last season, now out-classed, being too long in back and poor in saddle; v.h.c. (Ansdell) not worth his card; h.c. (Comyns) neat in shape and good in colour, but not out yet and coarse in comb; v.h.c. (Norris) shapely but grizzled in hackle and white in tail. The other noticed birds were—h.c., E. Pritchard; c., Hargreaves, Kendrick (2), Runciman, Nock. Dark cockerels (forty-five) were a good class, but the winners were not, we thought, up to the Palace form, with the exception of the £5 cup bird (Lingwood), which was the Palace cup-winner. He here took an easy lead. The same owner's h.c. was a large good bird, neat in head but imperfect in comb formation and slipped in wings; but for these defects he should have stood second. The actual second (Lady Gwydyr) was a neat bird, good in colour but small and narrow. We preferred the same exhibitor's h.c., 31, a nicely made bird of good colour and neat head, but hocked. Third (J. F. Hall) a fair all-round bird, but too upstanding and rather coarse in comb. Fourth (Clarke) a neat bird, but we should have passed him over on account of his being yellow in colour and having hocks with no middle toe feather. Fifth (Kendrick) one of the largest, and might have stood higher but for his large comb; h.c. (Comyns) good size and shape, but too much comb and tail; v.h.c. (Percival) the Palace fifth, more cochiny than ever; v.h.c., Davies; h.c., (Hall) wants depth; F. Bennett (2), A. Taylor; c., Fowler, Green, F. Bennett. Dark hens (twenty-six).—First (Percival) was, if we mistake not, the second Palace hen; she is nice in colour and foot feather and even in marking, but has rather a Cochin style of cushion. Second Mr. Norris's well-known hen, having apparently been in the wars since her last appearance; she is all round, perhaps, a better bird than the winner, but is rather long in back to please us exactly. Third (Pearson) a bird very much of the same type as first, not quite so clear in colour and rather longer in tail. Fourth (T. C. Peake) good in size and marking, but too long in back and brown on shoulder; h.c. (Comyns) a large evenly marked hen not quite through her moult; 198 (Lingwood) a model in size and shape, but brown in colour and coarse in head; h.c. (Taylor) a solid shapely hen; v.h.c. (Kendrick) good in size, shape, and feather, but too brown; h.c., T. C. Peake (2), Mrs. Ward, Comyns. Dark pullets (forty-five) not a very grand class considering their numbers. First-and-cup (Norris) the Dairy and Palace winner, looking rather overdone; she wins easily by size and shape. Her colour is now fading a little. Her faults in our eyes are a trifle too high a tail, with a cushion sinking a little before it reaches it, and a little indistinctness of marking on breast; her saddle is also rather heavy in marking. Second (Percival) a moderate bird of the silver-tipped style of pencilling on shoulders and back, good on breast, hocked. Third (Wheaton) good in shape and well pencilled on shoulders and back, but very poor in breast and cushion marking, hocked. Fourth (Lingwood) the second Dairy pullet, now showing more brown on back and top of breast than she did then. Fifth (Green) should have been passed over, though good in marking, for her Cochin cushion; c., (F. Bennett) nice in colour and marking, but too slight and long in back; 244 (h.c., Gwydyr) good in size, shape, and colour, but not quite distinct enough in marking. We should have put her in the list somewhere, and pretty high up too; v.h.c., Kendrick; h.c., Holmes, Comyns, Percival, Lingwood, Mrs. Ward; c., Berry, T. C. Peake (2), Haworth. Light cocks (twenty-five).—First-and-cup (G. H. Wood), very solid, broad in saddle, shapely, and short on leg, hocked; comb rather large though even, stained a little on saddle; well ahead of the second (Percival), the Palace and Hull winner we believe. Third (Hall) a fairly good one, diseased in feet. Fourth (Morgan) good shape but heavily hocked and too yellow; h.c. (While) very good in size and shape, but heavy hocks and a shocking comb; h.c. (Ive) might have stood higher but for foul feather in saddle; h.c., Holmes,

Turner, Mitchell, Breeze; c., Birch, Turner. Cockerels (thirty-nine).—First (G. H. Wood) good indeed in size and shape and fine in head, but rather warm in hackle and heavily hocked. Second (Lucas) very neat and stylish, good in colour, with striped saddle, nicely rounded hocks, but rather slight in build. Third (While) nice in shape and colour, moderate foot feather without hock, but rather coarse in comb and one wing out. Fourth (Breeze) a moderate bird with too much tail and foul in saddle feathers. Fifth (G. H. Wood) a good-coloured young one, very fine in comb and nice in shape, but heavily hocked. 119 (Hall, c.) very nice in profile but narrow; 122 (Norris, h.c.), fine in head; 136, v.h.c. (Onions), not worth his card in our view, as though good in shape he was coarse in comb and faulty in colour; v.h.c., Haines; h.c., Lingwood, While, Thorn; c., Mitchell, J. F. Hall, W. W. Walker. Light Brahma hens (twenty-one).—A good class as to size and shape, the chief failing noticeable being yellowness of colour. The first (Lingwood), a grand hen in all points, was quite free from yellow; her only failings were a cushion too much in the Cochin style, and a few dark feathers showing through it. Second (Onions) another good hen, not quite so white or so clear in hackle marking. Third (Birch) weaker still in colour, not so large, and slightly hocked. Fourth (Ansdell) not ready yet and dirty; v.h.c. and c., Mitchell; h.c., Bloodworth, Lucas, J. F. Hall, Mitchell; c., Causer. Pullets (thirty-nine).—As a class better than the hens and much clearer in colour. First-and-cup (Norris) perfect in shape and carriage, fine head and comb, very clear colour, ample foot feather with moderate hock, not over-large, a little indistinct in hackle marking, and clips in her wings a trifle too much; an easy win both of first and cup. Second (G. H. Wood) another very nice pullet all round, carries her wings a little loosely, shows a few dark feathers on saddle, and is heavily hocked. Third (While) a large shapely pullet, well fluffed out, a good white, a trifle confused in hackle marking, moderate hocks. Fourth (While) another good one as to size and colour, but rather underfeathered. Fifth (Mitchell) good size but not quite clear in colour, very broad in head for a pullet; v.h.c. (Bigg) fails in middle toe feather, as also does v.h.c. (Lingwood) also in shape of cushion; v.h.c. (Norris) also deficient in middle toe; h.c. (Haines, 309), second Dairy, might have stood higher here, perhaps her heavy hocks were against her; 304 (While) grand in size and shape but very dark on back; h.c., Morgan, Lucas (2), M. Hall, Haines, Thorn, While (2), Breeze, Naylor, Onions; c., F. Bennett, Morgan, Tedd.

Dorkings were on the whole not such good classes as those at the Palace. Coloured cocks (nine, with four empty pens).—First-and-cup (Pilkington), the Palace winner again rightly placed. Second (B. Smith) a thick-bodied bird, good in all points except that he is a little round in back; h.c., Countess of Dartmouth; c., Hewson. Cockerels (twenty-eight).—First, the Palace winner again to the fore. He is too white in tail for our taste and rather on the small side. Second (Bell) a good-bodied bird, rather long in leg and seems vry-tailed. He was, we believe, unnoticed at Palace. Third (Pilkington) a good style of bird, rather heavy in comb. We preferred him to second. Fourth (Milward) we did not like; he was poor in colour and small; the same owner's h.c., 373, was in our view a better bird in all points except that he was dark in feet; v.h.c. (Drewry) good in size and colour, but gone in comb; h.c. (Smyth) rather narrow but good in all other points, and short in leg; h.c. (Pilkington) grand in body but bad comb and feet; h.c. Hinde (2), Cathcart, Rutledge, Drewry, B. Smith, H. Herdman, C. Darby, Peel, Bell. Coloured hens (nine).—First-and-cup (B. Smith) third at Palace. A fine massive bird, short in leg and rich in colour. Second (Cathcart) very neat but small. Third (Drewry) another good-bodied hen, a little longer in leg than the other two. Pullets (eighteen).—First (While) a good-bodied pullet, rather long in leg and white in ear. Second (King) held the same position at the Palace; she is neat but small. Third (Peel) larger and good shape, but white in ear; h.c. (Smyth), the best in body and colour, but not out in comb yet; 494, another good one from the same yard, too young yet; h.c., Troughton, White, Herdman. Silver Greys, cocks (eight).—First-and-cup (Cranston) a true Dorking, short in the leg and square in frame; an easy win. Second (B. Smith) cup at Palace, a good all-round bird; h.c., Cresswell, Miss Shaw. Cockerels (sixteen).—Mr. Cranston here takes first and second with very neat birds of good size, good in comb and colour, well placed. Third (Roe) a moderate one; v.h.c., 423, another good one of Mr. Cranston's; h.c. Stokes. Silver Grey hens (twelve).—First (B. Smith) square in body, low on leg, and good colour, but out of condition. Second (Stephens) smaller but good; h.c., Cresswell. Pullets.—First-and-cup (Cranston) a very pretty pullet of nice colour. Second (Cranston) too pale on breast and hackle for our taste. Third (Mrs. Colville) better in colour but too long in leg; h.c., Cresswell. Any other variety cocks (eight).—First (Pilgrim) a white, the Palace second. Second (Mrs. Walker) another white, better in shape than first, but heavy in comb; h.c., Countess of Dartmouth, Miss Fairhurst. Cockerels (seven).—First (Mrs. Hayne) the Palace cup bird, smaller than second, but better in head and feet. Second (Cresswell) fair in body, but long in leg and heavy in comb. Any other variety hens (nine).—First (Cresswell) a shapely white, neat in comb. Second (Countess of Dartmouth) a good Cuckoo; h.c., Morgan, Stratford. Pullets (five).—First (Cresswell) a large well-footed bird, but very coarse in comb. Second (Stratford) neater in head but not well shown.

Cochins.—Buffs.—Cocks (twenty-four) a very good class. First (Tomlinson), second Palace, also took the cup for cock or cockerel. He is a fine massive bird, of medium shade, even in colour, fine in head, good

in feather except on middle toe. Second (Hind) rather darker in shade, and not quite so large; rough in tail. Not the Hull winner. Third (Brown) the third Hull. Fourth (Tomlinson) a bit coarse in comb and white in foot feather, otherwise good; v.h.c. (Gwydyr) not quite even in colour, v.h.c. (Stanton) a nice lemon; h.c., Pye, Johnstone, Brown; c., Bloodworth, Johnstone. Cockerels numbered no less than twenty-nine, and were a very fine class. First (Tomlinson) second at Palace, a large shapely cockerel of medium colour, good in all points, shows one white feather in tail. Second same owner as first, v.h.c. at Palace, a nice lemon, good all round, a beautiful tail. Third (Pye) the Hull winner, looking well. Fourth (Young) a moderately good bird, rather long in tail. Fifth (Darby) the Palace winner, a very nice lemon, now loose in wing; v.h.c. (585, Brown) a moderate lemon; v.h.c. (Pye) fine in size and shape, but heavily hocked; v.h.c. (608, Brown) too much tail; h.c. (Darby) a lemon, low on legs and squarely made, but heavily hocked; v.h.c. (Tuke) a lemon, with a self-coloured tail, but too much of it; v.h.c., Clatworthy, Swindell, Johnstone; h.c., Tomlinson (2), Procter, Cattell, Nickolls, Swindell; c., Brown (2), Rock, Tomlinson, Tuke. Hens (thirty-six).—Of this and the following class the Judge said that they were the best he had ever seen, and we fully endorse this view. First-and-cup (Tomlinson) the Palace winner again. Second (Percival) a very shapely hen, beautifully fluffed out, but a little high in tail and not quite even in colour, middle toe short of feather. Third (Bloodworth) a very nice Cochin shape, good size and feather, colour streaky. Fourth (Bloodworth) a nice lemon, a trifle high in tail again; v.h.c. (762, Brown) first here last year, not moulted out perfectly even, but might, we think, have stood higher; v.h.c. (Procter) another well-known winner in former years, now rather mixed in shades; v.h.c. (Brown, 788) the Hull winner; v.h.c., Pye, Bloodworth, Procter, Nickolls, Johnstone; h.c., Young, Lloyd, Bloodworth, Darby, Nelson; c., Naden. Pullets (fifty-six) must have been tough work for the Judge. First (Swindell) a lovely lemon pullet, very large, grand shape and feather, but hocked. Second another from the same yard, a sister of the winner, and nearly equal in points to her, but a little short of middle toe feather. These two led the class by a lot. Third (Percival) another good one, but not so large or even in colour as the first two. Fourth (Tomlinson) a nice even Buff. Fifth (Bloodworth) a little mixed in colour on shoulders. All the noticed birds were so good that we hardly like to individualise, but 820 (Procter), a very shapely pullet, a little uneven in colour, struck us as best of them; 829 (Clatworthy), unnoticed, a very promising young one, a little dark in hackle; v.h.c., Bloodworth (3), Clatworthy, Booth (2), Wade, Nelson, Ryland, Causer, Brown; h.c., Darby, Bloodworth; c., Brown, Booth, Adams. Partridge cocks (twenty).—A good class. First-and-cup (Sharpe) a shapely bird in profile, but his wings a trifle too much clipped-in; comb rather large, hocked; good colour, but hardly gloss enough. Second (Percival) a fresh one, very rich in colour and solid in make, but straight in back. Third (R. J. Wood) a very large bird, rather grizzled in hackle and heavily hocked, not quite in condition; v.h.c. (Tudman) good size, shape, and colour, but hocked and rough in comb; v.h.c. (Turner) too dark in hackle again; v.h.c., Grant; h.c., Stretch, R. J. Wood; c., Tomlinson. Cockerels (twenty-five).—Not a wonderful class. First (Clatworthy) a very good all-round bird of medium size. Second (Morgan) the Palace winner we believe, carrying rather much tail with too little fluff. Third (Heathcote) a moderate hocked bird, too long in leg. Fourth (Brown) small and leggy; 665 (F. Robertson) a squarely made thick-set bird, wants a little more size, but even so might have been in the list; h.c., Sharpe, R. J. Wood, Tudman, Sowthern, Dougall; c., Lamb. Hens (seventeen).—First-and-cup (R. J. Wood) good in size, fair in shape and pencilling, wants feather on middle toe. Second (Percival) a fair-sized hen of the old sort. Third (C. Brown) a large moderately marked hen, the Hull winner we think; v.h.c., R. J. Woodman, Tudman, Sharpe, Sowthern; h.c., Sharpe, Beckerley, R. J. Wood. Pullets (twenty-six).—A fair class. First (Sharpe) nice marking, but hardly shape or foot feather enough; of second (R. J. Wood) the same may be said. Third (Sowthern) better shape and feather, but not so clear; v.h.c. (R. J. Wood) good size and fair shape and marking; v.h.c., Tomlinson, Sowthern, Lamb; h.c., Brown, Sharpe, R. B. Wood, Percival, Tudman; c., Stretch. Whites.—Cocks (eleven).—First-and-cup (Weeks) a really fine Cochin of good colour; an easy win. Second (Percival) the Palace winner; v.h.c. (Tomlinson) not quite clear in colour; h.c. (Darby) a nice clear white. Cockerels (twelve).—A good class. First (Chase) must have pressed closely on the old bird for the cup. Second (Darby) a well-known winner, looking a little overdone; h.c., Chase (2), Tomlinson (2), Steven, Darby. Hens (twelve).—A very good class. First (Percival) the Palace winner again, a grand hen. Second (Darby) second at Palace, also a good one. One of Mr. Chase's v.h.c.'s a very good shape; v.h.c., Lady Gwydyr, Chase; h.c., Darby, Chasc. Pullets (twelve).—First one of Mr. Darby's well-known winners. Second another from the same yard. It was an honour to win both prizes in this class. There were no less than six v.h.c.'s; all good. They were Fowler, Percival, Chase (2), Darby, Wise. Blacks.—These classes seem to be looking up. Cocks (seven).—First (Darby) the Palace second, brilliant in plumage, but not very large, and too much tail. Second (Procter) the Palace cup-winner we think. His great size for a Black should have put him at the top. h.c., Horsfall, Holmes. c., Badger. Cockerels (ten).—First (Badger) good shape and colour, but rough in comb and wattles, and rather upstanding.

Second (Darby) hardly large enough, but good shape and colour; v.h.c., Badger, Fortey; h.c., Toomer. Hens (nine).—Six of these were noticed. First (Cook) very good in size, shape, and feather, and in nice condition. Second (Darby) not so good in cushion or feather; v.h.c., Turner, Badger; h.c., Cook; c., Horsfall. Pullets (ten).—Mr. Storer's beautiful pullet, third at Palace, came properly to the front here. She has much improved in cushion, and is a rare good one. Second (Fortey) another good one, rather large in comb. The three v.h.c.'s (Pritchard, Storer, and Badger) might easily have won in former years; h.c., Lady Gwydyr, Darby.

Langshans.—Cocks (ten).—These birds seem to be getting settled into a type somewhat between Cochins and Dorkings. First (Lloyd) a massive bird of fairly brilliant plumage and a good bit of tail. Second (Buchan) smaller but very brilliant. Third (Gabb) more comb and tail and great gloss. Fourth (Rowland) too long in leg; v.h.c., Thompson, Croad; h.c., Hinde. Cockerels (twenty-two).—First (Orme) very bright and shapely, large tail, long in leg. Second (Bush) a similar type; as also were third (Garnett) and fourth (Bush); v.h.c., Bush (2), Nickolls; h.c., Croad, Knight, Ripon. Hens (eleven).—First (Hinde), full in breast and good colour. Second (Rowland) somewhat long in back, showing great gloss. Third (Gabb) rather a long tail. Fourth (Hinde) rather more the Cochin type; h.c., Buchan. Pullets (twenty-three).—First and Langshan cup (Nickolls) good shape and bright green reflections. Second (J. Bennett) long in body again, good in colour. Third (Buchan) a Cochin without foot feather. Fourth (Housman) a well-developed Cochin cushion; v.h.c., Thompson, Croad; h.c., Croad, Cook, Tait.

Malays.—Cocks (ten).—First (Fairlie) good outline, but very bare on thighs. Second (Lecher) in brilliant condition; h.c., Copp. Cockerels (twelve).—First-and-cup (Richards) not upstanding enough for our taste; we preferred second (Strugnell), a powerful-looking bird in fine condition; h.c., Brooke (two), Fairlie, Bailey, G. Burnell, Fletcher. Malay hens (fifteen).—First (G. Burnell) rather too level in body and high in tail. Second (Bailey) had the same fault. We preferred h.c. (Lowe) to either of them. Pullets (eleven).—First-and-cup (Fairlie) pretty good in stand. Second (Richards) moderate; h.c., G. Burnell and Brooke.

Crèves.—Cocks (nine).—A good class. First-and-cup (Jackson) good in shape and colour, fair in crest, moderate in muffling. Second (Park) not so good in crest, but better in muffling, good body; v.h.c., Jackson; h.c., Clementson and Chadwick. Cockerels (seven).—First (Jackson) good in all other points, but squirrel-tailed. Second (Williams) much smaller; h.c., Calvert; c., Ward. Hens (six).—First (Lloyd) and second (Jackson) large shapely birds, both showing white in crest; v.h.c., Chadwick; h.c., Park; and c., Wilkins. Pullets (six).—First (Calvert) and second (Lloyd) both nice pullets. We rather preferred the latter; h.c. and c., Ward.

Houdans.—Cocks (twelve).—First (Wingfield-Stratford) good in size, but rather upstanding. Second (Howard) rather deeper in chest, a very white crest; v.h.c., Lane; h.c., Nishett, Thomas, Lee, Penson. Cockerels (twenty-five).—First (Copplestone) heavy in comb, but good in body. Second (Nickolls) too upstanding again. Third (Thomas) a good-sized bird. The class struck us as being rather undersized; v.h.c., Jackson; h.c., Ward, Wingfield-Stratford, Beedham, Wood, Naylor, Copplestone. Houdan Hens (fifteen).—A very good class. First-and-cup (Wingfield-Stratford) a massive bird, with a grand crest. Second (Sumner) a little long in leg; v.h.c., Howard; h.c., Pilgrim, Lec, Copplestone, Nickolls, Jones, Penson. Pullets (eleven).—First (Wingfield-Stratford) a very shapely pullet, nice in colour, good in crest and muffling. Second (Thomas) rather white in crest, but otherwise good. Third, Lane. We thought the pullets better as a lot than the cockerels; h.c., Naylor, Nickolls, Thomas; c., Pilgrim.

Spanish.—Cocks (four).—First-and-cup (Boulton), rather heavy round the eyes, rough in face; a nice comb. Second (Bull) a moderate face and ugly comb; v.h.c., Le Sueur. Cockerels (thirteen).—First (Lady Allsop) nice quality of face and lobe, but the latter small and folded. Second (Walker) a longer lobe, but rough. We preferred one v.h.c. (Boulton), and one of the h.c.'s (Walker) to second, and are not sure that we should not have placed this latter bird at the top. He had a nice quality of face and smooth lobe, but was dark in feet; v.h.c., Chatterton. Hens (six).—First-and-cup (Chatterton), a grand hen not quite well of her moult yet. Second (Sillitoe), poor in quality of face; v.h.c., Allsop; h.c., Dixon. Pullets (nine).—The first (Bull) had a beautiful lobe, but was rather narrow over eye, as also was second (Walker), for which reason we preferred Mr. Aldridge's h.c. to either of them. She is a bird of very high quality indeed, though a little blue in face; v.h.c., Dixon; h.c., Kirk and Le Sueur.

Andalusians were not strong classes. Cocks, any age (ten).—First (Stevens) too heavy in pencilling and rough in comb. Second (Wilson) better in pencilling, but nothing out of the common; h.c., Troughton; c., Arnold. Hens (fourteen).—First (Arnold) we could not persuade to look at us, but she seemed nicely marked of the dark shade and good in lobe. Second (Ashwell) another very dark one; h.c., Stevens, Wilson, Arnold; c., Jones, Boissier, Bacon, Stevens.

Leghorns.—Brown, any age, cock and hen (six).—First (Gibbs). Both birds nice in colour, brilliant in plumage, and nice shape; cock, rather stained in lobe. Second (Hurst), the cock rather too heavy in comb, striped in hackle and red on lobe. Hen nice in lobe but

poor in colour; h.c., Fraser; c., Arden, Wilson. Whites.—Cock and hen, any age (six).—First (Bradbury). The cock smart but small, and pink in lobe, with a neat comb; the hen very dirty. Second (Caldicott), cock too high in tail and stained in lobe; hen too heavy in comb; h.c., Morecraft. In this class Mr. Fowler showed a pair of Cuckoo Leghorns, a recent importation. They were nice in marking, fair in shape, and defective in lobe. They could not be noticed by the Judge, as they were only sent at the last moment to the White class.

Minorcas (six).—A moderate class rightly judged. First, Roscorla. Second, Wilson; h.c., Harwood.

Sultans were a fair class of seven. First, Beldon. Second, Eyles. Third, Rawnsley, were even in quality; h.c., Muir. The first-prize hen died during the Show.

Hamburghs.—Black cocks (eight).—First (Heath) best in lobe and colour, but rather rough in comb. Second (Bracewell) a neat bird, with a comb too much up at back, otherwise fine; h.c., Hinde, Mallinson. Cockerels (eighteen).—First-and-cup (Kelleway) good in lobe, nice style and condition; passed over at Palace, we believe. Second (Rawnsley) very stylish and in brilliant condition. Third (Bell) a shapely bird of even quality all round. 1667, v.h.c. (Serjeantson) very nice in lobe; v.h.c., Hogg, Serjeantson; h.c., Kilvert, Booth, Lawson. Hens (eight).—First (Gladstone) very neat in head, clear in lobe, and bright in feather, but slightly ticked with white on neck. Second (Heath) a shapely bird, in nice condition, but not clear in lobe; h.c., Copeman, Caldicott, Wilde. Pullets (nineteen).—First-and-cup (Copeman) a very stylish pullet, good in colour, comb, and lobe. Second (Booth) good in other points, but crooked in comb. Third (Kelleway) rather pale in head, and not in condition; v.h.c., Garnett, Hogg, Kilvert, Heathcote, Serjeantson; h.c., Serjeantson, Bell, Kilvert, Fellowes. Golden-pencilled cocks, any age (fourteen).—First-and-cup (Beldon) the Palace and Hull winner, best in style, very rich in colour, splendid in tail, fair in comb, good in lobe. Second (Fielding) very neat in head and comb, but not up to the winner in tail or condition. Third (Burn) another rich-coloured one, better in tail than second, but behind first in this point; v.h.c., Whittaker (2). Hens, any age (eight).—First-and-cup (Driver) the first at Palace, very neat, nicely marked, and in fine bloom; an easy win. Second (Bell) rather twisted in hackle and not in show form. Third (Fielding) a neat pullet, but not up to the other two in tail marking. Silver-pencilled cocks, any age (six).—First (Rawnsley) a very neat bird, but rather overdone. Second (Beldon) not equal in tail marking to the winner, otherwise a good one; h.c., Fielding, Pickles. Hens, any age (six).—First (Fielding) neat in style, good in marking, but uneven in comb. Second (Beldon) meaty in comb again, though better in this than first; behind her, however, in marking; h.c., Rawnsley, Pickles. Golden-spangled cocks, any age (thirteen).—First-and-cup (Caleb May) a very stylish bird, good in marking and lobe, fair in comb, in splendid condition. Second (Thomas May) rather heavy in comb and wild in the pen, marking moderate. Third (Fielding) a large-bodied bird in brilliant condition; v.h.c., C. May; h.c., Parsons, Jackson, Dent, Westley, Bracewell. Hens, any age (nine).—First (Duckworth) neat in shape and head, very rich in colour, and good in markings. Second (Randall) looked ill about the head and overdone; she was nice in shape and colour, with moderate marking. Third (Blakeman) had also a pallid head, and was loose in tail; h.c., Dent, Simpson, Driver. Silver-spangled cocks, any age (ten).—First (Rawnsley) good in size, moderate in comb, nicely marked. Second (Beldon) very stylish and well marked, but a bit heavy in comb, in better condition than the winner; these were both fresh birds. Third (Ashwell) the Palace third, a nice bird, but rather heavy in comb, light in saddle hackle; h.c., Randall, Campbell. Hens, any age (eleven).—First-and-cup (Beldon) the Palace and Hull winner, a beautifully marked hen, rich in colour, and neat in head. Second (Ashton & Booth) another nicely marked one, but a good deal behind the first. Third (Fielding) well marked again, but out of sorts and loose in tail; v.h.c., Pickles; h.c., Rawnsley, Randall, and Campbell.

Game.—Black-breasted Red Cocks (eighteen).—First (Lyon) an easy win. The cup here last year as a chicken; good in colour, rather short in head, and perhaps flat in shin. Second (Halsall) a good hard bird, but apparently suffering from a corn; not sound in tail. Third (Matthews) a fine bird of the usual Stowmarket style, good colour and quality, but perhaps a shade too light. Fourth (Dutton) a fair bird of good colour; h.c. (Beck) same stamp as third, but rather rusty in fluff. 1354 (Lyon) we think should have been noticed in spite of his back claw having lost a nail; h.c., Walters, Frith; c., Frith. Cockerels (thirty-four).—All four prizes go to Mr. Lyon, who also takes both challenge cups. The cup-winner out of condition, for which some people would have put him below second, a bird of fine quality and good in tail, but faulty in hocks. Third a good hard bird of good style, but dull in colour. Fourth out of sorts again and swelled under the throat. We should have put 1390, v.h.c. (Pope), a good all-round bird, before him. 1367, h.c. (Pope), a very promising cockerel, will make his mark later on. 1380, h.c. (Brierley), dull in colour and beesy on wing. 1381 (Harley), a very smart bird, might have been in the list; perhaps his throat being skinned may account for it. 1387 (Matthews), h.c., wants time. 1389, h.c. (Goodwin), too dark in eye. 1395, h.c. (Beck), a pretty bird. 1397 (Fletcher) might well have stood second had he been in condition. 1399 (Mynors), h.c., bad tail; h.c., Staveley, Brierley. Hens (eighteen).—First (Matthews) a fine reachy hen, very like

the Palace winner, pencilled in wing, for which reason many would have put second (Pope) before her. This was a first-prize winner here last year. Third (Harley) a bird of good quality, but not equal to 1487 (Lyon), unnoticed. 1484, h.c. (Dutton), the second here last year. 1492, v.h.c. (Staveley), a well-known old hen of good quality. 1497 (Caton), h.c., a very bright bird, rather pencilled on wing. v.h.c., Lyon; h.c., Mason and Walters; c., Weeks. Pullets.—A wonderful class of thirty, must have been difficult to judge. First (Lyon) took the £30 challenge cup for pullets, and the cup for best Black Red hen or pullet. She was a bird of wonderful reach and quality, but rather mossy in flights on one side. Second (Harley) the Palace winner. Third (Pope) wants time. Fourth (Harley) we should have put behind some others, notably 1525 (Halsall), h.c., which some fanciers thought worthy of the cup. 1528, h.c. (Lyon), the Oxford winner. 1526 (Pope), h.c., a very good bird but for white earlobes. Most of the other h.c.'s might have easily been first in any other year. They were Mason, Horton, Lyon, Brierley, Walters, Maynard, Halsall, Pope, and Gibbs. Brown Red cocks (fifteen).—First (Matthew) very good style, but not the recognised colour. Second (Brierley) better in colour but not so fine in quality. Third (Martin) very good in colour and condition, but a trifle short in head. Fourth (Ward) fine in head and good in colour; h.c. (Ashburner) too much hackle; h.c. (Mercer) full of quality, and might well have stood much higher up; v.h.c. (Bothway) a very good all-round bird, well shown. Cockerels (twenty-seven) were not a strong class for Birmingham. First and three-guinea cup for best Game cock in Show, also section cup (Mercer), a wonderful bird in colour, but in our opinion behind the old Black Red cock as a Game bird. Second (Matthew) a good reachy bird, dark in face but hardly lemony enough. Third (Dance) a smart bird, but quite enough hackle. Fourth (Bell) rather long in tail and not quality enough; v.h.c., Dunstan; h.c., Ward (2), Richardson, Butler, Bond, and Warner; c., Martin, Dance, Brierley, Ashburner. Hens.—A good class. First (Mercer) a fine hen in all points, and properly placed. Second (Matthew) a very stylish reachy, hen well shown. Third (Heaton) a good powerful hen, nice coloured hackle, rather red in face; h.c., Warner, Woolf (2), Bothway, and Gibbs. Pullets.—First (Mercer) more reachy and better coloured in hackle than second (Brierley) a very neat bird. Third (Dance) another very good pullet, short close hackle. Fourth (Martin) rather too light in hackle; h.c. (Ward) a very smart promising pullet with plenty of style; h.c. (Matthew) a very stylish pullet, rather too red in face; h.c., Warner and Ward. Duckwings.—Cocks (eleven).—First (Harley) a bird of beautiful colour and style. Second (Harley) a good-coloured bird, blind of an eye, heavy in tail and hackle, and ticked in fluff. Third (Matthew) we preferred to second, and should have so placed him. He was beautiful in head and first-rate in hackle and colour, perhaps rather short in leg; h.c. (Staveley) we also preferred to second; he is good in colour, shape, and style, and well might have stood third; h.c., Westcott and Harley. Cockerels.—First (Goodwin) a reachy hard-feathered bird with splendid head and tail; his faults are stripe in hackle and barred wing. Second (Phillips) a very good chicken, striped in hackle, rather young; in a month's time would run winner close. Third (Harley) the Palace winner, not in form; h.c., Goodwin, (2), Frith, and Matthew. Hens (seven).—First (Wharton) a good-shaped bird well tucked up, but lacking in quality. Second (Staveley) a well-shaped stylish hen of very good colour, and we think she might well have stood first. Third (Careless) fair in colour and style, but we thought 1581 (Harley) a better bird in all points. Pullets.—First (Potter) a bird of fair style, well shown, but not in our opinion best in the class. Second (Goodwin) fine in style, good colour in breast, but pencilled in flights. Third (Staveley) a very stylish reachy pullet, hard in feather, and good colour. 1584, c. (Goodwin), a hard-feathered, stylish, good-coloured pullet, good head and eye, and our choice for first; c. (Staveley) another good-coloured stylish pullet, which we also preferred to the first and second. Any other variety Cocks.—First (Hulme) a yellow-legged Pile, a good-coloured bird well shown, but thick in head. Second (Walker) a yellow-legged Pile, which if well shown would have beat first. Third Frith; h.c. Frith. Cockerels.—First (Lyon) a stylish yellow-legged Pile, capital in head and tail, but a little light in hackle. Second (Brierley) a very hard-feathered stylish chicken, capital in colour on hackle, but rather dark on saddle and wing bar, but not up yet. Third (Heaton) the Palace cup-winner, and might have stood higher if in form; his colour on saddle and wing is rather light; h.c. Bothway, Frith, Heaton, Brierley. Hens (six).—The winners all yellow-legged Piles. First (Brierley) a smart bird; second Halsall; third Walker. Pullets (six).—First (Halsall) a yellow-legged Pile, good in head. Second (Brierley) a nice willow-legged Pile. Third (Bell) also willow-legged; c. R. Walker.

Asseels were one more in number than last year, but not quite of such fine quality. As there is no question that the great object of the Indian breeders of these birds was the pit, the Judge (Captain Astley), as we think correctly, judged them with a special reference to fighting qualities. In cocks any age (fourteen) Miss Mortimer was first with a White, very stylish and upstanding, and hard in feather. Second (Sugden) was a good type of bird, bold and erect, but not in condition. Third (Countess of Dartmouth) a dark bird not quite of such style as second. Fourth (Dutton) a handsome Spangle. 1622 (Bunnett) a powerful bird but rather coarse. 1624 (Ricketts) a very good old imported bird. 1626 (Dutton) good in some points, but very short and chubby in beak and head. 1627 (Livett) a Malay evidently.

Hens (fourteen).—First (Miss Mortimer) we did not like for her place; the hen is very muscular but with no style, she looks lumpy and common. Second (Dutton) a smart-looking hen and rightly placed. Third (Ricketts) a black and white Spangle, probably owed her position to her colour. Fourth (Dutton) another very good hen, grand in muscle, but quite crooked in beak. Of the rest we most liked 1629 (Montresor), the correct type of a good strong hen, and 1631 (J. D. Peake) a very good small hen which might well have been in the list.

Polish.—White-crested Black cocks (six).—First (Unsworth) a fine crest, not quite out yet and thus rather loose. Second (Rawnsley) small, and crest rather too much backward in lie; 1260 (Perry) another large crest not quite up; v.h.c., Evans Broad; h.c., Shaw. Cockerels (nine).—First (Fearnley) large and good in crest, except that there was a want of feathers leaning to the front, for which reason we preferred second (Partington), a small bird with a globular crest; v.h.c., Rawnsley; h.c., Shaw (2), Lecher, North, and Battye. Hens (six).—First (Partington) a nice-shaped crest, not over-large. Second (Broad) larger in crest, but showing more black feathers in front; v.h.c., Shaw (2); h.c., Unsworth. Pullets (five).—First (Partington) nice shape and good globular crest. Second (Shaw) larger in crest, but hump-backed; h.c., Rawnsley and Shaw. Golden cocks (eight).—A fine class. First (Huish) nice in spangling and large in crest, but showing a good many white feathers in it, as also did second (Partington), whose crest was rather flat at top; v.h.c., Rawnsley and Fearnley; h.c., Broad and Unsworth. Cockerels (six).—First (Jarvis) a very good bird all round, large crest, good colour, and marking. Second (Millner), not very far behind the winner, but showing more pen feathers in his crest; v.h.c., Dawson. Hens (seven).—First (Partridge) fair in marking and grand in crest, but some white in it. Second (Partington) another nicely marked one, not so large in crest; v.h.c., Shepherd; h.c., Boothby, Hopwood. Pullets (nine).—First (Jarvis) and second (Oscroft) very nice birds in crest, colour, and marking; v.h.c., Boothby; h.c., Fearnley, Huish, Adkins. Silvers.—Cocks (seven).—First (Huish) a very large crest, almost entirely white. Second (Allan Smith) good in size, shape, and crest, and fair in marking; v.h.c., Adkins (2); h.c., Huish and Millner. Cockerels (six).—First (Rawnsley) an evenly marked one with a crest neatly tipped with black. Second (A. Smith) not a bad one, but far behind the winner; h.c., Bloodworth and Adkins (2). Hens (seven).—First-and-cup (Adkins) nicely spangled and good in crest. Second (Adkins) not quite so good in marking, but splendid in crest; v.h.c., Bloodworth, Huish, and Smith; h.c., Bloodworth and Adkins. Pullets (seven).—First and second again went to good birds of Mr. Adkins'; v.h.c., Rawnsley, Adkins, Bloodworth, and Smith.

Any other variety, cock and hen (twenty).—First (Lowe) were good La Flèche. Second (Bradbury) were a fine pair of Plymouth Rocks. Third (Gabb) were called Eymore Blacks, whatever they may be. Have we here the origin of the Langshan? They looked just like Langshans without foot feather. Will Mr. Gabb kindly tell us where they come from? v.h.c., Muir (Scotch Greys); h.c., Ridley (La Flèche), Calvert (La Flèche), Crewe (Chamois Polish, 2), Darby (Silkies). There were also in this class Courtes Pattes and some cross-breeds.

Bantams.—Golden or Silver-laced cock and hen (eleven).—First (Serjeantson) Golden, good in all points but tail marking. Second (Serjeantson) Silvers, the cock rather loose in comb, markings good in both birds; h.c., Peel, Serjeantson, Bracewell (2), Stephens; c., Browne. White clean-legged cock and hen (five).—First (Crowther) small, neat, and good in colour. Second (Rawnsley) rather larger and not quite so clear; h.c., Crowther. Black clean-legged, cock and hen (fifteen).—First-and-cup (Clapbam) the Palace winners, a very neat pair, nice in colour and condition, very fine in lobe. Second (Phelps) moderate; v.h.c., Rawnsley; h.c., Stephens, Troughton, Davies; c., Crowther. Game.—Black-breasted and other Reds.—Cock, any age (fourteen). A good class. First-and-cup (Addie) a very stylish Black Red, good in colour. Second (Morris) another of similar stamp; v.h.c., Addie, Morris; h.c., Hore; c., Stamps. Hens (eight).—First (Addie) a very smart Black Red, good in style and colour. Second (Fletcher) a good-coloured Brown Red. Game.—Any other variety.—Cocks, any age (seven).—Only a moderate class. First (Fletcher) a stylish Duckwing, not clear enough in wing; the Palace winner. Second (Ward) a fair yellow-legged Pile, not up in feather. Hens (eight).—First (Fletcher) a willow-legged Pile, very stylish but rather large. Second (Ward) a yellow-legged Pile; h.c., Careless, Hodges; c., Thomas. Bantams.—Any other variety.—Cock and hen (eleven).—Only a moderate class. First (Stamps) Duckwing Game Bantams, very moderate in quality. There was clearly an oversight in awarding this prize, as they were in the wrong class; a protest was entered, but the decision of the Judge was upheld, on what ground we fail to see. Second (Law) Rose-combed Cuckoos, too large; h.c. (Cooke) a very nice pair of Black-booted Bantams; h.c. (Fletcher) a nice pair of Speckled-booted.

Ducks.—Aylesbury (eight).—First (Fowler) weighed 18 lbs., and were a good pair. Second (Hedges) were 17 lbs. 8 ozs. Third (Fowler) 16 lbs. 8 ozs.; v.h.c. Fowler, Gunn; h.c., Snell. Rouens (thirty).—The winners here (Unsworth) also took the cup for this and the preceding class; they turned the scale at 19 lbs. 4 ozs., while second (Brierley) were 20 lbs. 10 ozs. Third (Mallinson) were 19 lbs.; and fourth (Wakefield) the heaviest in the class, though not the best in

points, were no less than 20 lbs. 12 ozs.; v.h.c., Partington, Unsworth, Wakefield, Knight; h.c., Kettlewell, Fowler, Mallinson, Rawson, Snell, Gladstone. Pekins (twenty-six) were a fine class. The winners of cup, first, and second came from Messrs. Fowlers' yards, and were the best in points, being large and upstanding; we noticed, however, that the neck feathers were twisted so as to form a crest on the neck, which we did not like. Third (Allen) another good pair; v.h.c., Nickolls; h.c., Crewe, Perry (a fine pair), Knight, Allen, T. C. Peake (2), C. Morgan. Cayuga (six).—First (Webb). Second (Coulson); h.c., Naylor. East Indian (twelve).—First and second (Burn). Third (Maynard); h.c., Browne (2), Hayne, Maynard, Schofield, Earle.

Ornamental Waterfowl.—Mandarins.—First (Perry) very neat and in grand bloom. Second (Wade), perhaps clearer in marking than first; v.h.c., Gladstone; h.c., Boucher. Carolina Ducks (seven).—First (Perry) in splendid condition. Second (McGlashan); v.h.c., Boucher; h.c., Yardley, Pratt, Robinson. Call Ducks (eight).—First (Gladstone) of the Wild Duck type. Second (Jaggcr), Whites; h.c., Hartopp, Crowther. Any other variety (eight).—First-and-cup (Gibbins), Paradise Ducks. Second (Perry) White-faced Whistlers; v.h.c., Serjeantson (Spotted Bills), McGlashan (Bahamas), Yardley (Ruddy Shell Ducks); h.c., Serjeantson (Chili Widgeons).

Geese.—White (five).—First-and-cup (Garforth) scaled 43 lbs. Second (same owner) 42 lbs. 8 ozs.; v.h.c., Rawson (2); h.c., Snell. Grey or Mottled (twenty-six).—A fine class. First (Stott) were 41 lbs. 8 ozs. Second (Rawson) 40 lbs. 1 oz. Third (Hawkins) 39 lbs. 1 oz.; v.h.c., Kettlewell, Colville, Watson, Bradburne, Smith (2), Sutcliffe, Bower; h.c., Countess of Dartmouth, Lawden, Williams, Tyler, Snell, Graham (2), Colville.

Turkeys.—Cocks (twenty).—First-and-cup (Wykes) did not weigh so heavy as second (Gladstone) which was 36 lbs. 8 ozs., or third (Kendrick) 34 lbs. 8 ozs.; v.h.c., Colville (2), Lewis, Bibb, Neville, Nutt, Wykes; h.c., Longman, Ward, Watson, Shenton. Cockerels (twenty-two).—First-and-cup (Wykes) won for points as against size. Second (Kendrick) weighed 26 lbs. Third, Wykes again; h.c., Lady de Rothschild, Kettlewell, Kendrick, Watson (2), Longman, Williams, Lawden, Nutt, Lewis. Hens (twelve).—First-and-cup (Gladstone), Second (Kendrick). Third (Watson); h.c., Wykes (2), Nutt. Pullets (fourteen).—Cup, Wykes. Second, Kendrick. Third, Wykes; h.c., Kendrick (2), Nutt, Watson.

PIGEONS.

The Pigeons at Birmingham occupy as usual the gallery. Weather favours the Show this year, and we have certainly never seen the Pigeons to such advantage before. Their numbers are 815 pens—about one hundred higher than last year; still they are small compared with the Palace, and some of the classes with good prizes are not well filled. Of course the *spécialités* of Birmingham, such as Dragoons, Antwerps, and Tumblers, are in force.

Carriers head the list. The cup Black cock (Montgomery), priced at £1000, is a magnificent bird all round; his size is fine, and the form of his beak wattle perfection. The second (Fulton) is a little behind him in beak wattle, but very good in eye. Third (Maynard) good, but beak wattle fails a little towards the end; h.c., Maynard, Baker, Fulton. The winning Black hens are both remarkable birds. First (Baker) wonderful in beak for a hen. Second (Fulton); h.c., Maynard (2). The first Dun cock (Maynard) is well ahead. The second (Fulton) good, but a little irregular in eye wattle; h.c., Baker, Maynard, Siddons. The first Dun hen (Fulton) is a little out of condition, but still easily first for her form. Second (Fulton) is larger in wattle; h.c., Maynard. For any other colour cock both prizes went to Blues. The first (Hewitt) a grand bird, but we preferred the wattle of the second (Baker); h.c., Maynard, Fulton. The cup young Black (Burton) is splendid in form, and indeed all the winners promising. Second (Maynard). Third (Fulton); h.c., Billyeald, Burton, Fulton.

Pouters, considering the classification and prizes, are not so numerous as we should expect. The first Red cock (Baker) would not show to advantage when we saw him. The second Yellow (Sugden) is fine in globe, but shows too much white on the breast; h.c., Fulton. The first Yellow hen (Fulton) good. The second Red (Sugden) stylish, but rather small; h.c., Sugden, Fulton. The cup Blue cock (Sugden) is a correctly marked bird, with fine globe, but not improved by having a bare patch on his breast. Second (Fulton); h.c., Baker, Fulton. The two winning Blue hens are both slim and elegant. The first (Baker) best in length. Second (Fulton); h.c., Wardle, Sugden. We liked the form of the first White cock (Fulton), though after the Blues he looked small. Second (Baker). In the classes for any other colour all the prizes go to Blacks. Cocks.—First (Baker). Second (Crofts); h.c., Fulton, Sugden. Hens.—First (Crofts). Second (Fulton); h.c., Sugden, Baker.

Tumblers are quite a feature of the Show, and have no less than eleven classes. The first Almond (Braid) is a beautiful rich real Almond in colour. Second (Weston) darker. Third (Fulton) light in flights, otherwise good in colour—all three fine in head; h.c., Baker, Weston, Fulton, Yardley. Any other colour, Short-faced.—First (Braid) a very good Black. Second (Braid) a red Agate. Third (Weston) a yellow Agate; h.c., Bott, Weston (2), Yardley. Blue Beards are first and second (both Weston) in the next class, both pretty little birds; h.c., Martin, Fulton. Reds win both prizes in the Rosewing classes. First John Wilkes, jun.; second Crudging-

ton; h.c., Doughty, J. Brettell Wilkes (2), J. Wilkes, jun., Gamon. First (Crudginton) in Mottles is a good Black. Second (Careless) another very pretty bird, but with a little too much white; h.c., Mapplebeck, Crudginton; c., J. Wilkes, jun. Badges follow, a variety hardly known beyond the Tumbler circle. First (Hadley) and second (Crudginton) are very rich Reds; h.c., Wilkes, Hadley (2); c., Wilkes. Then come Saddles with magpie marking and mottled heads. First (Wilkes) is a Black, second (Crudginton) a Blue; v.h.c., Trebble, Clarke; h.c., Jackson, Wilkes; c., Mapplebeck (2), Doughty, Jackson, Wilkes. Self-coloured Muffed Tumblers are a large class, the winners both Black. First (Woods); the second (Bott) very fine in foot feather; h.c., Bott, Southall, Crudginton; c., Ludlow, Collins. In any other variety Muffed Redbreasts win both prizes. First Woods, second Bott; h.c., Southall, Crudginton; c., Ludlow, Collins. Long-faced Balds or Beards number twenty-six. First (Woods) is a lovely Blue Beard. Second (Mapplebeck) a Black Beard. Third (Woods) a Black Bald, clean cut but dull in colour; c., Clarke, Lund, Bowler. Clean-legged Long-faced Tumblers of any other colour muster twenty-six. First-and-cup (Woods) is a Yellow very correctly mottled. Second (Crane) a Red. Third (Mapplebeck) a Yellow.

Barbs are few. In the old class both the winners are black, and both splendid in head. The first (Montgomery) a little the smallest. Second (Baker); h.c., Baker, Fulton. In the young class a most promising Red is first (Sutton), and a Black second (Sutton). h.c., Baker.

Trumpeters.—The winning Mottles are both marvellous birds in rose and foot-feather; the second (Fulton) much lighter in colour than the other (Hutchinson). There are several other fine birds in the class; h.c., Shaw, Hutchinson, Baker. Two lovely Whites win in the next class, the first (Hutchinson) best in rose, the second (Shaw) in condition; h.c., Hutchinson, Wardle.

Runts require larger pens. First (Stephens) the well-known French Silver. Poor thing! he could hardly move in his pen. Second (Price) another of the same colour; h.c., Stephens, Green.

Archangels.—The cup (Whichello) goes to a nice but not a wonderful bird, too blue in tail. Second (Whichello) has brown marks on the wing, which we observed on one of the Palace winners. We much liked the third (Stevens), a very purple-breasted bird; h.c., Stevens.

Fantails (White).—The cup-winner (Loversidge) is a small bird with flat and very sound tail. Second (Cresswell) good of the same type, he held the same position at the Palace. Third (Stevenson) very small and nervous. Pen 2559 (Serjeantson) a splendidly round tail; h.c., Serjeantson (2), Loversidge, Cresswell (2), Crofts. Any other colour.—First (Cresswell) a Blue with large and very round tail. Second (Stevenson) a Black Saddle, very good in black; h.c., Shaw, Warhurst.

Nuns.—All Blacks. First (Woods) small and good in colour. Second (Dale) good in flight; h.c., Shaw, Crofts.

Swallows.—First-and-cup (Tedd) a Black, better in marking than in colour. Second (Bulley) a rich Red, nice in foot feathers. The class is a good one, but many birds fail in foot feather; h.c., Crofts, Sutton, Wardle.

Maggies have three classes. The cup goes to the first Black (Bulley), a nice small bird with light bill. Second (Stevens) is rather too Tumbler-like; h.c., Bulley, Tedd. The Red winners are all good. First Bulley. Second Tedd; h.c., Tedd, Bulley. Any Other Colour.—A good Yellow of Mr. Tedd's takes first and second; h.c., Bulley. Mr. Tedd shows a bird (2617) of very curious colour, a kind of Silver, each feather laced like an Andalusian fowl.

Jacobins are not such classes as we should have expected at Birmingham. Blacks are only four. First (Weyman & Buchanan) close in hood. Second (Goold) not quite so good in this respect, but brilliant in colour. The cup goes to the first Red (Fulton), very perfect in all points of form, though he might be brighter in colour. Second, Weyman & Buchanan; h.c. and c., Dale. The first Yellow (Weyman & Buchanan) is fine in chain and bright in colour. Second (Dale) a pretty little bird, not very sound in colour; h.c., Fulton; c., Dale. Whites take both prizes in the Any other colour class. First (Waters) rather coarse, but good in chain. Second (Dale) smaller, but with hood too much thrown back; h.c., Weyman and Buchanan (2), Fulton; c., Maynard.

Turbits have now three classes, and share a cup with Owls. First in Reds or Yellows (Fulton) is a splendid little Red, rich in colour and down in face. Second (Crafer) a very fair Yellow, short in beak; h.c., Cresswell; c., Baker. A well-known old Silver (Baker) wins in the next class, rather short of gullet. Second (Fulton) a Blue, a nice bird all round, and short on the leg; v.h.c., Woods, Baker; h.c., Dale; c., Shaw. First in the other class (Cresswell) is a tiny Black, evidently a hen, very fine in head. Second (Fulton) a coarser Black, but with the merit of clean thighs; h.c., Braid.

Owls are not numerous. Two Whites win in the Foreign class, and the cup goes to the first (Woods). Second Baker; h.c., Fulton, Wardle; c., Leake. In English (seven entries) a Powdered Silver, splendid in head, is first (Woods). Another Silver, not his equal second (Waddle); h.c., Fulton and Shaw; c., Shaw.

Dragoons have six classes. We are sorry to see many birds with very heavy beak wattles winning again. The cup Blue cock (Smith) is excellent in colour and fine in style, but in respect of wattle does not please us. The second Blue (Shewell) has also much wattle;

h.c., Osmond (2); c., Beach, Fulton, Smith, Mitchell. In Any other colour cocks first (McCandlish) a Yellow, fine in colour and shape, but as big as a Carrier. Second (Smith) a very stylish Blue Chequer; h.c., Pratt, Morpus; c., Beach, Smith, Shewell. In hens we remarked the beautiful bars of the first Blue (Smith), though her beak is too large for our fancy. We preferred the same owner's second; h.c., Osmond, Fulton; c., Mitchell, Simkins. Any other colour hens.—First McCandlish. Second Smith; h.c., Smith; c., Osmond. The two winning young Blues much pleased us; both are fine in shape and dark in eyelash. First Smith; second Osmond; h.c., Burton, Gaunt; c., Morpus, Osmond. Any other colour young Dragoons.—First McCandlish; second Osmond; h.c., Shackleton, Osmond. c., Yardley, Ludlow, Morpus.

Antwerps.—We have seldom seen such a lot of really "short-faced" birds. Too often Antwerps are of a nondescript type which seems to puzzle judges, and in which we can see little beauty. Hardly an indifferent bird was to be seen in the prize list, and the winners almost defy criticism. The cup Red Chequer seemed well to deserve his position; both the Silver Dun winners too, and the first Blue are splendid birds in head. The Long-faced birds, too, make creditable classes. The awards in these classes were:—Silver Dun.—First-and-cup, second, and fourth, Clay; third Clulee; h.c., Godfree, Clay, Thompson, Mapplebeck, Gough, Slater, Wade, Breeden, Kemp. Blue.—First Hubbard; second Ludlow; h.c., Green, Clay, Yardley (2), Southall. Red Chequered.—First-and-cup Waterhouse; second and third Clay; h.c., Clulee (2), Yardley, Wade, Kemp. Blue Chequered.—First Clay; second Ludlow; h.c., Waterhouse, Green, Clay, Yardley (2), Ludlow. Long-faced.—First and second Rawnsley; h.c., Clulee, Wade, Lister. Silver Dun.—Hens.—First-and-cup, second, third, and fourth Clay; h.c., Moseley, Godfree (3), Clulee, Thompson, Waterhouse, Ludlow. Blue or Blue Chequered.—Hens.—First and second Ludlow; h.c., Grice, Waterhouse, Hubbard, Walton. Any other colour.—Hens.—First and second Clay; third Thompson; h.c., Lister, Gough, Copeman, Southall, Clulee, Ludlow. Silver Dun, hatched in 1880.—First Moseley; second Fellows; third Moseley; fourth Gordin; h.c., Yardley (2), Haywood, Lister, Mapplebeck, jun., Salmon, Moseley. Blue, hatched in 1880.—First Kemp; second Butler; h.c., Mitchell, Hubbard, Ludlow. Blue Chequered, hatched in 1880.—First Grice; second Yardley; h.c., Walton, Lund. Red Chequered, hatched in 1880.—First-and-cup Rawnsley; second Clulee; third, Kendrick, jun.; h.c., Thompson (2), Yardley (2), Wade, Slater, Green, Moseley, Holden.

Short-billed Frilled Varieties.—The two classes contain lovely collections. In the first-named Satinets are first (Wardle) and second (Bott), and a Bluetie third (Paget); h.c., Verdon (2), Yardley (2), Bott; c., Fulton. In the other class a Black Turbiteen is first (Baker), and a Blondinette second (Yardley); third Verdon; h.c., Waterhouse (2), Wardle, Baker. These two classes fill thirty-five pens, and are a treat to any admirer of these eastern beauties.

Any other New or Distinct Variety.—First (Gatty) is a sandy Frill-back. Second (Chavasse) a Modena; a curiously marked bird of Runtish type. Third (Crofts) a Red Letz. 3979 (Naden) is a curious bird, black with white flights and a white line down its face; a cross apparently between a Dragoon and Beard; h.c., Gatty, Stevenson, Bulley, Yardley (2), Fulton; c., Ludlow.

The following were the principal sales up to the time of our going to press. Mr. Pilkington's cup Coloured Dorking cock, £15 15s.; Messrs. Smyth's h.c. Dorking cockerel, £10; Mrs. D. Lane's v.h.c. Houdan cock, 10 guineas; Mr. Rawnsley's first-prize Silver Polish cockerel, 10 guineas; Mr. J. Walker's second-prize Spanish cockerel, 10 guineas; Mr. Lyon's cup Black Red cock (a son, we believe, of the £100 bird of two years ago), £100 10s.; Mr. Harley's second-prize Black Red Game pullet, £25; Mr. Lyon's fourth Black Red cockerel, 10 guineas. We believe the same owner's cup cockerel in this class changed owners privately at 50 guineas. Mr. Kelleway's cup Black Hamburg cockerel, 10 guineas; Mr. Wyke's cup Turkey cockerel, 10 guineas.

BEXLEY HEATH POULTRY SHOW.

A LOVELY day induced us to visit this Show. It was held on Wednesday and Thursday last week, and the entries attained the respectable total of 653. The managers of many more pretentious exhibitions might well take a hint from the method in which this little Show is conducted. An able and enthusiastic Secretary and a Committee of thorough fanciers make a good foundation to start with. The penning was admirable, the heavier birds being in all cases in the lower tier. The feeding was all that could be desired, and the catalogue with the awards was in the hands of the public at 3 P.M. on the first day.

Dorkings, *Cochins*, and *Dark Brahmas* call for no special mention, but amongst the *Light Brahmas* the cock in the first-prize pen (Thurlock) was a very fine bird in all points, while the second-prize pen (Cobb) contained a pullet large in size and good in shape; but for her hocks and a very few dark feathers showing through her back she would not be easily surpassed. *Spanish* require no special mention. The winners in the *French* class were a very fine old pair of Mr. Howard's Houdans. *Game* had a large entry of fourteen, and the winners (Mercer) were a large reachy pair of Brown Reds, the cockerel being well pencilled on breast. In *Hamburgs*, Spangled or Pencilled (sixteen) the first (Bell) were an evenly marked pair of Golden-

pencils neat in head. The first-prize Black Hamburgs (Kellway) were bright in colour and neat in comb and lobe. In this class the Judge disqualified a pen shown by H. Platten of Fakenham, Norfolk, for cut comb. *Leghorns* were a strong class of eighteen, first (Philcox) being very neat Browns, the cockerel very like the Palace winner. Second (Fowler) good Whites. *Andalusians* and *Minorcas* mustered twelve, first (Winser) being a nicely pencilled pair of the first-named sort; second (Wilson) Minorca chickens. *Polands* were eleven, and the first (Broad) went to a fine pen of White Crests. In Game *Bantams* (twenty) Mr. Anns took first and third with neat Black Reds and Piles; while second (Vigers) were Brown Reds rather large in size. In the Other variety Bantam class (twenty-three) the winners (Ayliffe) were Japanese, second (Geary) being Silver Sebrights. A good pen of Rouens stood first (Howard) in the Aylesbury or Rouen *Duck* class, while the Pekins mustered twelve pens of good birds, first going to Messrs. Fowler, and second to Mr. Kellway. The Selling classes were well filled, and business appeared to be rather brisk. Local classes were added to the schedule this year, and were fairly good.

The *Pigeons* were a fine show, all the classes being well filled with birds of good quality.

HULL POULTRY SHOW.

WHEN we printed our report of this Show the following cup awards had not come to hand:—Mr. Ashburner's Brown Red Game cock took the £4 cup for the best cock or cockerel in the Brown Red classes. Mr. Dyson's yellow-legged Pile pullet (not the first-prize hen) took the cup for best Game hen or pullet, any other variety. In the Hamhurg hen class the cup was won by Mr. Beldon's Silver-spangled hen.

In our report of the Light Brahmas, through a mistake in copying, our notes on the pullets were given as relating to the hens. Our readers will please substitute the names of Morgan (first), Norris (second), and Begg (third), for those given in our last issue, and read our comments on the hens as relating to the pullets. Our actual comments on the hens were as follows:—"First-and-emp (G. H. Wood) a shapely hen of good colour, but hocked. Second (Mitchell), a large hen, very rusty in colour. Third (Norris), good size, colour, and foot feather, hut narrow in saddle."

VARIETIES.

ROOT SHOWS.—Messrs. James Carter & Co. announce, that instead of holding a show of pulled roots this year they are devoting prizes for acreage crops; they will, however, exhibit roots and other produce at the Smithfield Club Show, at the top of the arcade at the High Street, Islington, entrance of the Agricultural Hall.

— **PEA PRIDE OF THE MARKET.**—This new variety for farm and garden culture, that was raised at Messrs. Carters' Seed Farm at St. Osyth, and named "Strength," will be sold under the name of Pride of the Market. It is a variety of great promise, being dwarf, sturdy, very productive, with large pods, and peas of superior quality.

— **BRITISH BEE-KEEPERS' ASSOCIATION.**—At the last Committee Meeting of this Association held at 105, Jermyn Street. Present—Mr. Cowan in the chair; Rev. E. Bartrum, Messrs. Cheshire, Abbott, Hooker, and Rev. Herbert R. Peel, Hon. Sec. A large number of books presented by Mr. P. Jackson to commence the formation of an apicultural library had been already placed on the shelves by the kindness of the Jermyn Street Society. Mr. Cheshire was asked to act as Hon. Librarian, and to receive and arrange any further gifts that might be made. A second edition of "Modern Bee-keeping" is to be immediately published by Messrs. Longman, the first edition having very rapidly become exhausted. The Hon. Secretary stated that the diagrams were now included by the Education department as apparatus towards which grants are made for schools working in connection with the department. Several matters bearing upon the operations of the coming year, finance, and general routine occupied the remainder of the meeting.

— **ROOTS AT THE BIRMINGHAM SHOW.**—Messrs. Webb & Sons had a very fine stand. The specimens of Webbs' Imperial Swede were extremely fine. The prizes this variety has won are estimated at over £5000 in value, which include first and second honours at this Show for nine years in succession. Webbs' Prize Mangold, Col. North Yellow Globe, Mammoth Long Red, New Selection of Yellow Intermediate, Yellow-fleshed Tankard, and Webbs' Champion Yellow Globe Mangolds were all shown in splendid condition. White-fleshed and yellow-fleshed Turnips were also fine. Potatoes added considerably to the display. Webbs' Improved Schoolmaster was

conspicuous, and other leading varieties were admirably represented. Although Messrs. Sutton were not exhibitors this year, yet the produce of their seeds in the root classes was of great excellence. The very fine Mammoth Long Red and Berkshire Prize Yellow Globe Mangolds, and Suttons' Champion Swede, with which Mr. R. Webb, Beenham, secured Messrs. Proctor & Ryland's cup, were splendid. Equally meritorious was the collection of six roots each of Suttons' Mammoth Long Red, Suttons' Berks Prize Yellow Globe, and Suttons' Golden Tankard Yellow-flesh Mangolds exhibited by the same grower, and which gained him the cup in Class 3. Very fine specimens of Suttons' Yellow Intermediate, grown by Mr. W. W. Champion, and handsome roots of Berks Prize Yellow Globe, grown by Mr. R. Webb, worthily secured first and second honours while Mr. J. Perry's twelve specimens of Suttons' Champion Swede, which took the cup in Class 9, were of remarkable merit.

— **CANADIAN PRODUCTS.**—Some extraordinary roots and vegetables from Manitoba and Ontario are on view at Mr. Cuthbert's, seedsman, Clayton Square, Liverpool. Some of the roots are on their way to the Smithfield Club Cattle Show, London. It appears that in addition to those from Manitoba, Messrs. Rennie, seedsmen, Toronto, have sent an assortment of Pumpkins, amongst them being a Monarch Squash weighing 313 lbs. The plant that produced the fruit was planted on the 1st of May, fruit cut on the 6th October, thus showing an average growth of 2 lbs. per day. Also a very large red Mangold, over 3 feet 6 inches in length and nearly the same in girth. It is ugly in shape, but weighs 73 lbs. There is a Yellow Globe, weighing 58 lbs., Mangold Citrons 33 lbs., and immense examples of Beet Carrots, Parsnips, Vegetable Marrows, Onions, and Potatoes. Fifty varieties of Apples are on view, which are of fine size, colour, and shape. Some Newtown Pippins weighing 21 ozs., and Gloria Mundi are grand amongst many others.

— **THE death** is announced of Mr. R. O. Pringle, at the age of 62, who was for many years, and at the time of his demise, editor of the *Irish Farmers' Gazette*. He was one of the best authorities of the day on all subjects connected with land tillage, cattle breeding, and farming operations generally. His contributions were of great value to the farming classes, and the almanack with which his name was identified was greatly prized.

ARTIFICIAL COMB FOUNDATION.

YOUR correspondent "A. P." in the Journal of the 18th ult., page 474, referring to comb foundation, states that "if the foundation be proved to be of substantial advantage in apiculture, a successful way of using them in straw hives will be invented and adopted." From this statement it may be inferred that foundation has not hitherto been proved to be of substantial advantage, whereas it has been of such immense advantage that bee-keeping would not hold the position it does now without it. I have now used foundation in my hives for sixteen years, and certainly should not like to do without it. With foundation straight combs are the rule, whereas straight combs without foundation are an exception. Not a single comb in my apiary has been worked without foundation, and I can take out any frame and put it into any hive with the certainty of its fitting. I have never seen it possible to do this in hives where foundation had not been used.

I have long since discarded straw hives, because bees in such hives are not under the complete control of the bee-master, the manipulations are much more laborious, and the quality of the honeycomb produced is at best only second-rate, but when I did use them I fixed strips of foundation in a different way from that suggested by "A. P." Some years ago I introduced a straw hive with a flat crown of wood, which I gave to cottagers to induce them to adopt a more humane system of bee-keeping than they had hitherto been accustomed to. On the crown could be placed wooden boxes or supers. The under side of the crown and the under side of the top of the super had saw cuts in them to a depth of one-eighth of an inch, and an eighth of an inch wide. The distance between these saw cuts in the straw hive was $1\frac{1}{2}$ inch, which is the proper distance for brood combs, and the distance in the supers was 2 inches, because it is better for the honeycomb to be thicker, as a less quantity of wax is used to fill up a super with thick combs than would be the case if the combs were only $1\frac{1}{2}$ inch apart.

When it is required to fix the foundation, it is cut into strips

not more than from 4 to 6 inches in depth, the hive turned up, and a strip of the proper length dropped into the first groove. The hive is then tilted up from front to back, and having previously heated some wax in a smelter, the long spout of the wax smelter is brought near the upper end of the groove, and a small quantity of wax is allowed to run down the groove on one side of the foundation, which securely fixes it in its place. When the wax is firm, proceed in the same way with the next strip, and so on until your hive is full of foundation. If properly done and the wax hot enough there will be no danger of the foundation falling out. The boxes were treated in the same way. I have for some years used the Stewarton hives, and have always fixed the foundations in this manner. "A. P." recommends the foundation to nearly touch the cross sticks, which makes me believe he has not tried it. The foundation should not touch the sticks within half an inch, or the result may be buckled combs, which frustrate the object the bee-keeper has in view.

We have heard much lately about straw hives, but how is it we never see any honey produced from these hives at any of the numerous shows held throughout the country? The only answer is that the straw hivists are afraid with their irregular combs to compete with the beautiful straight combs now produced by those who have the moveable-comb hive. If a bee-keeper wishes to obtain the best article in the shape of honey he must adopt the most improved methods of production, and he will find that unless he uses comb foundation he will not be able to compete with his neighbour who does. Comb foundation is very different from what it was some years ago; it has been greatly improved, and the price is so low that it is certainly within the reach of all. That it has been and is of substantial advantage has been proved long ago, and I am sure no one who has used it properly would ever think of doing without it. "A. P." says, "I shall be pleased if all the schools give them a fair trial next season, and record their results." Has "A. P." only just heard of foundation? and does he not know it has been employed by advanced bee-keepers for a great number of years, and by nearly all bee-keepers using moveable-comb hives now? I could record the results he asks for, but it would be a repetition of what has been previously stated by others in this and other journals, not only showing that it is useful but indispensable.—THOS. WM. COWAN, *Horsham*.

MR. PETTIGREW'S CHALLENGE.

IN a late issue of our Journal my friend Mr. A. Pettigrew calls on "PERTSHIRE" to come forward and compare results with his Carluke friends. As, owing to the attack of foul brood which I lately described I am practically "out of the running" this year, I showed the challenge to a neighbour of mine, a working mason, who may be taken to be a fair representative of the modern school. My friend, William Mann, is no stranger to the skep, having practised that system for years. He has, however, gone in strongly for the bar-frame system as the most profitable. In his reply he says:—

"I see that Mr. Pettigrew has published some wonderful results from a skep at Carluke. I had thought that the time for pitting skeps against bar-frames was over long ago; but if Mr. Pettigrew chooses I am prepared to set aside six of my best hives against any six of his during next season, the one who fails to show the best results from any one of his six stocks to forfeit one of his stocks to the other. I do not profess to be an expert like Mr. Pettigrew; but that will give him the better chance of getting a bar-frame hive to learn upon. I have twenty-four stocks all in splendid condition. I raise all my own queens from my choicest stocks, and I am this winter venturing to keep spare queens in case any should be required in spring. I do not keep a record of every hive, but I did of one this year. It gave me 122 lbs. comb honey in 1 lb. sections, 30 lbs. extracted honey, and has over 40 lbs. left to winter on; yet I consider this has been a poor honey season. I sold the honey taken from this hive for £9 11s., and have my stock left to me well supplied.

"In 1878 I took from one hive 173 lbs. in supers, the hive being only one of several swarms run off a skep in the same year. I had only four weak stocks to commence with that year, but I increased to eleven, sold 600 lbs. of honey, and left enough for winter stores."

I may add that Mr. Mann makes all his own hives, and though devoting great attention to his bees, I do not think he lost a day's work at his trade this season.—WM. RAITT.

SUCCESSFUL BEE-KEEPING.

I SEE in your valuable Journal of October 28th, that Mr. Pettigrew invites comparison of his straw system with the bar-

frame or Stewarton system. I have been a reader of the Journal for many years, and have read with interest what has been advanced on both sides all tending to the advancement of bee-keeping. I admit Mr. Pettigrew has done much for the cottager by the advocacy of large hives, but surely he must see the great advantages the new system has over the old straw hives. Your correspondent has a good right to praise his own system, but with your permission I will give one instance that came under my own observation of the benefits of the Stewarton system in Arran this most productive season. From one stock James Crawford, a mason, obtained the following results: Old stock, 140 lbs.; top swarm, 187 lbs.; second swarm, 154 lbs.; total, 481 lbs.—JAMES ANDERSON, *Ryeside Cottage, Dalry, Ayrshire*.

OUR LETTER BOX.

Andalusian and Angora Rabbits (A. W.).—We are unable to inform you where they are obtainable; those who have them for disposal would do well to advertise them.

Fowls and Foxglove (Baltimore).—Although we have not had experience of fowls being injured by eating Foxglove, still no doubt it would have such an effect as you describe. The following extract from Dr. Hogg's "Vegetable Kingdom" may be of interest to you:—"If the leaves are rubbed between the fingers they emit a nauseous odour, which is dispelled in drying, and they have a bitter and slightly acrid taste. The plant is narcotic, sedative, and diuretic. When administered in small doses it has not any marked effect on the system, but in large doses it produces nausea, vertigo, headache, dimness of sight, secretion of saliva and urine, vomiting, frequent action of the bowels, increased pulse and confusion of thought, and convulsions. Its medicinal properties were first brought into notice by Withering, and, when judiciously administered, it has proved valuable both as a diuretic and for its sedative influence over the circulation. It is highly useful in dropsy, in controlling the action of the heart, in aneurism, hypertrophy, and enlargement of the heart, palpitations from gouty or rheumatic irritation, and in various forms of hemorrhage. It has also been prescribed in mania, epilepsy, spasmodic asthma, and whooping cough. But, as a medicine, it should never be administered unless by a skilful and practised hand, because of its extreme activity, and the dangers resulting from an imprudent use of it; and one of its peculiarities is that, after having been given in moderate doses for several days without apparent effect, it sometimes acts suddenly, with an accumulated influence, even to the danger of life."

Feeding Bees (G. S.).—You ought to have fed the bees freely in September, so that the stock at Michaelmas weighed at least 20 lbs. without the hive, and then have left them quiet and well protected through the winter. If the colony is much below that weight now you can only continue giving syrup during mild weather; if the hive is about the weight named feeding will not be necessary, but the hive must be well covered to keep the bees as warm as possible.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51°32'40" N.; Long. 0°8'0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1880.		Baromet- er at 32s and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
Nov.			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
			Inches.	deg.			deg.	deg.	deg.	deg.		deg.	In.
Sun.	21	30.407	31.0	30.2	N.E.	39.2	33.0	26.8	62.1	21.9	—
Mon.	22	29.950	25.8	25.6	N.	38.6	34.3	24.6	66.0	21.3	—
Tues.	23	29.889	35.3	33.4	S.	37.6	44.4	25.3	57.6	21.3	0.010
Wed.	24	29.909	49.6	47.6	S.	38.2	52.5	34.6	58.1	31.8	0.092
Thurs.	25	29.623	53.8	50.7	S.W.	41.1	56.5	47.8	81.3	42.0	0.090
Friday	26	29.603	55.5	54.4	S.W.	42.6	56.6	43.3	60.3	35.3	0.106
Satur.	27	30.003	45.7	43.7	S.W.	43.6	53.1	43.3	78.4	36.6	—
Means.		29.912	42.4	40.8		40.1	47.9	35.1	66.3	30.0	0.298

REMARKS.

21st.—Fine, bright, and cold.
22nd.—Very cold; fine with bright sunshine; slight fog in evening.
23rd.—Overcast morning; slight rain at noon; sunshine between 1 and 2 P.M.; damp evening.
24th.—Rain in morning; fair afternoon; much warmer day.
25th.—Stormy, much wind; showers and very bright sunshine at intervals; starlight evening.
26th.—Rain in morning; afternoon and evening fine.
27th.—Very fine spring-like day.
Temperature on the whole near the average, but varying very much; that at 9 A.M. on 26th, 55.5°, was nearly 30° above that of the 22nd.—G. J. SYMONS.

COVENT GARDEN MARKET.—DECEMBER 1.

IMPORTATIONS of Amerieau Apples have been large this week, making fair prices. The first cargo of St. Michael Pines is to hand, but samples are inferior. Trade quiet.

FRUIT.

		s.	d.	s.	d.			s.	d.	s.	d.
Apples.....	½ sieve	2	6	4	6	Melons	each	2	0	4	0
Apricots.....	box	0	0	0	0	Neectarines..	dozen	0	0	0	0
Cherries.....	½ lb.	0	0	0	0	Oranges	½ 100	0	0	0	0
Chestnuts.....	bushel	12	0	16	0	Peaches	dozen	12	0	18	0
Figs.....	dozen	0	6	1	0	Pears, kitchen ..	dozen	0	0	0	0
Filberts.....	½ lb.	1	6	1	8	dessert	dozen	2	0	4	0
Cobs.....	½ lb.	1	6	1	8	Pine Apples ...	½ lb	1	0	2	0
Gooseberries ..	½ sieve	0	0	0	0	Plums	½ sieve	2	6	4	6
Grapes	½ lb	2	0	4	0	Walnuts	bushel	0	0	0	0
Lemons.....	½ 100	12	0	18	0	ditto	½ 100	0	0	0	0



9th	TH	Royal Society at 4.30 P.M.
10th	F	Quckett Club at 8 P.M.
11th	S	
12th	SUN	3RD SUNDAY IN ADVENT.
13th	M	
14th	TU	Royal Horticultural Society, Fruit and Floral Committees at
15th	W	[11 A.M.]

PEARS.

FROM the peculiar results of the last four or five years wall trees would appear to have become quite indispensable to ensure a crop of Pears. Year after year the pyramids and espaliers blossom freely, but spring frosts and cutting winds destroy the flowers, so that without the wall trees a supply of good fruit cannot be relied on. But the wall trees seldom fail to afford a fair quantity of fruit, and this year the crop was abundant.

The trees are still young, hardly any of them having yet fully covered the allotted area of wall space, yet most of the palmette verriers on west and north aspects had good crops, and the diagonal cordons upon an east wall were with few exceptions crowded with fruit. The wall of palmette verriers is a fine sight, for the trees are of uniform size and form, the lower branches are fast approaching the top of the wall, and the spurs are yearly becoming more fruitful. Yet the cordons are much preferable, beginning to bear fruit so soon after planting, that much of it has frequently to be picked off for the first year or two to avoid damage to the trees. They are easier to manage and may be planted against any space of wall or building, even one or two trees being useful, for a single cordon when fully grown will afford several dishes of fruit, and it only requires a strip of wall 18 inches wide. If you can afford space for a dozen or two you have only to make as many marks as you have trees, from top to bottom of the wall at an angle of 45°, and 18 inches apart, then prepare the soil, plant the trees—one to each mark, up which you must train the stem. Can anything be more simple? I can add that certainly nothing can be more useful. There stand the huge pyramids, each of them large enough to bear a bushel of fruit, and yet the crop is lost year after year, while the little cordons upon a wall facing due east go steadily on year by year bearing fruit, which becomes finer and more abundant as the trees gain size. Many a pleasant and profitable hour have I spent this year along this wall of sixty cordons; nor did the pleasure end with the gathering of the fruit, for subsequently in the fruit room its time of ripening, comparative value when ripe, and keeping properties have all been watched and noticed, and the season is now sufficiently advanced to enable me to submit a list of some of them for the information and guidance of your readers. First come the summer Pears, of which there were four varieties ripe in August, the first being

Summer Doyenné, better known to many fruit-growers as *Doyenné d'Été*. The first dish of fruit was ripe on August the

3rd, and it continued to afford a supply till the 19th. This was managed by first gathering the fruit at the top of the cordon, where it is always ready first, and the ripening process continues with singular regularity downwards to the bottom. The fruit is small but handsome and highly coloured, sweet and juicy but not rich.

Citron des Carmes.—This was two days later than *Summer Doyenné*, to which it is very similar in flavour. Its larger fruit spoils quickly, but I had a few dishes of it, which proved very useful.

Beurré Giffard.—This came in time to continue the supply, the first dish being ripe on August the 19th. Its very handsome yellow rosy-cheeked fruit has a fine flavour, and is very juicy and sweet. I value it highly, regarding it as the first really good Pear, but like other early varieties its season is somewhat brief, this year lasting only twelve days.

Jargonelle.—The first dish of this delicious old favourite was ripe on August the 21st, and the supply continued for a fortnight.

Summer Beurré d'Arenberg.—A fine and abundant crop, the first of which was ready for use on August the 30th. I find the following note of it in my fruit book, written after tasting the fruit this year. "Delicious! very juicy, sweet, melting, with a brisk refreshing acidity. A most valuable variety, forming an admirable succession to *Jargonelle*." There was a good supply of it for a fortnight, which may be named as the general duration of early Pears.

Desiré Cornélis.—This ripened a few days earlier than *Williams' Bon Chrétien*. Its fruit is equally fine, and it possesses all the good qualities of a first-class Pear. It first bore fruit here on a pyramid some five or six years ago, and was so good as to induce me to assign it a place amongst the most select varieties. The growth is so robust that it will probably prove a useful hardy variety generally.

Williams' Bon Chrétien.—Not ripe till September the 12th. Fruit large and excellent. A palmette verrier on a north aspect kept up the supply of fruit till October.

Colmar d'Été.—This fruited here for the first time this year, and the first dish of it was ready for table September the 18th. It has a pleasant musky aroma, and is brisk, sweet, and juicy.

Beurré de l'Assomption.—This also fruited for the first time, and I was much disappointed with it. The large fruit was coarse, gritty, tolerably sweet and juicy, with very little aroma. Quite a second-rate variety in this soil.

Beurré d'Amanlis.—Fine large handsome fruit, still of a pale green hue when ripe. Delicious, very juicy, buttery, sweet with a pleasant acidity. First dish ripe on September the 30th.

Madame Trejve.—As remarkable for its large size, fine form, and high colour, as it is for sweetness, juiciness, and aroma. It was not ripe till the first week in October, and did not keep good longer than a week. This fruit was from a cordon. Some other fruit off a pyramid was equally large, but was deficient in colour and of so poor a flavour as only to be useful for stewing.

Doyenné Boussoch.—Very large and remarkably handsome fruit, which was ripe on October the 1st. It was tolerably sweet and juicy, but quite second-rate; nor was its poor flavour peculiar to the year, for after fruiting it for several seasons both against a wall and out in the open garden, I am sorry to record its invariable inferiority.

Jersey Gratioli.—This, too, was ripe on October the 1st ; and although decidedly superior to Doyenné Boussoch in flavour, I by no means regard it as an indispensable variety.

Fondante d'Automne.—Once more I gladly record the invariable excellence of this delicious Pear. There is none equal to it in its season, which begins about the last week in September and continues till the middle of October. It is tender, juicy, extremely melting, very sweet, and has a rich flavour with a delicious aroma. It is very hardy and prolific, bearing fruit early, and continuing fruitful.

Jalousie de Fontenay.—Ripe the first week in October. Pleasantly sweet and juicy, but quite second-rate.

Comte de Lamy.—This forms an admirable succession to Fondante d'Automne and is equally good. The fruit is not large, but its singular richness well atones for this. The first dish of it was ripe on October the 15th. I have often had good crops of excellent fruit upon a pyramid ; this year only the cordon had a crop.

Thompson's.—This was ripe on October the 14th, and continued good for three weeks. It is a most excellent Pear, remarkably juicy and rich.

Baronne de Mello.—The fruit was very handsome, quite covered with an orange russet. It was sweet, juicy, and of pleasant flavour, but not rich. Ripe the second week in October, and was good till November.

Doyenné du Comice.—An abundant crop of its fine large fruit both upon a cordon and a palmette verrier, but there was none upon the pyramids. It was ripe on October the 9th, and was as usual excellent. It is one of our very best Pears, and should never be omitted from the choicest selection.

Beurré Superfin.—The fruit was very large with singularly long stalks. It was ripe the third week in October, and proved very juicy, sugary, rich, and delicious. A fine Pear of great excellence.

Pitmaston Duchess.—The tempting description published of this Pear induced me to plant several trees of it, but I regret to say it has not answered my expectations. The magnificent fruit was ripe the middle of October, but was so acid as to be decidedly unpalatable.

Beurré Bachelier.—Fine large fruit of pleasant flavour, sweet but not rich. It was ripe on November the 16th. Fruit off the same cordon was not ripe till February the 5th in 1875.

Napoleon.—Ripe the second week in November. Very juicy, sweet, and rich. An excellent Pear

General Todtleben.—A remarkable Pear with very large and long fruit, some of the stalks, too, being quite 3 inches long. It was ripe early in November, but I did not taste it till November the 15th, and to my surprise found I was too late, every fruit then being overripe ; but one or two still retained much richness, and its peculiar perfume and the rosy-tinged flesh proved it to be the true variety.

Dana's Hovey.—There was an abundant crop of this delicious little Pear, which was ripe early in November. Very rich, juicy, sweet, and with an agreeable musky flavour.

Passe Colmar.—An excellent Pear of delicious flavour, very juicy, sweet, and rich. A fine crop of it, ripe the second week in November, and keeping well.

Beurré Diel.—Ripe early in November, of fine flavour but not very juicy. A useful old variety, very prolific.

Huyshe's Victoria.—Handsome fruit, bright yellow dotted with russet spots, and of a dark red on the exposed side. Ripe mid-November ; very juicy and buttery, but a little deficient in sugar this year. A useful Pear and good cropper.

Alexandre Lambré.—Ripe early in November, of fine flavour, but not juicy. An inferior variety.

Alexandre Bivort.—Handsome fruit of medium size, very rich, sweet, with a brisk but delicious acidulous flavour, and so juicy that the juice drops from it as it is cut or eaten. An excellent Pear, ripe the middle of November, and keeps good for a long time.

Maréchal de Cour.—Ripe on November the 16th. Fruit very large, long, and handsome. Most delicious, juicy, aromatic, and rich. A grand Pear, with what is justly termed a sprightly flavour.

Emile d'Heyst.—A delicious Pear, very rich, juicy, sweet, and highly perfumed. The first dish of an abundant crop

of its very handsome fruit was ripe the second week in November.

Beurré d'Arenberg.—This is another of our best winter Pears, which this year was ripe by the middle of November. The fruit is of medium size, it keeps well, and is very juicy and richly flavoured.

Deux Sœurs.—The long large fruit is not handsome, but it is very good, of fine flavour, melting and buttery, and very sweet. It was ripe on November the 15th, and was only good for a fortnight.

Josephine de Malines.—This had moderately large fruit, which was ripe in the second week of November. It has a delicious delicate flavour, and what Dr. Hogg has aptly termed a "high rose-water aroma." Its yellow flesh tinged with red also helps to render it a distinct Pear easy of recognition.

Glou Morceau.—I tasted the first fruit of this on November 29th. It was then so far ripe as to yield to pressure, but would evidently be better if kept for another week or two. The flavour was brisk and pleasingly acidulous yet rich, and it was very juicy. A most valuable Pear, which has come slowly into fruiting, but its numerous blossom buds give pleasing promise of an abundant crop next season.

The foregoing brief descriptive notes may be taken as a safe guide for light soils. Experienced pomologists will doubtless observe the remarkable earliness of many Pears that is so peculiar this year. It is not merely a difference of days but of weeks and months. I cannot account for it, and can only regret that so many of the best Pears are ripe at the same time instead of following in succession as in ordinary seasons. The list is by no means to be regarded as containing the only good varieties, although it contains so many that I at any rate have no reason to agree with those who assert that we have very few really good Pears. Several well-tried favourites had no fruit this year, others are not yet ripe and were therefore left out ; but I may usefully add the names of such excellent varieties as Comte de Flandre, Millot de Nancy, Jewess, Besi Vaet, Marie Louise d'Uccle, Winter Nelis, Nouvelle Fulvie, Duchesse d'Orleans, Knight's Monarch, Urbaniste, Red Doyenné, Doyenné Defais, Louise Bonne of Jersey, Madame Millet, Easter Beurré, and Beurré Clairgeau, which last as usual had an abundant crop of large fruit brilliantly coloured, and so good in flavour as to cause it to be highly valued. Let not my addendum be regarded as unreliable. I have repeatedly fruited all of them, and not one is lightly recommended. To owners of small gardens requiring a select dozen I may name Beurré Giffard, Summer Beurré d'Arenberg, Désiré Cornélis, Fondante d'Automne, Comte de Lamy, Doyenné du Comice, Dana's Hovey, Passe Colmar, Alexandre Bivort, Glou Morceau, Josephine de Malines, and Madame Millet.—EDWARD LUCKHURST.

LILIUM LANCIFOLIUM (SPECIOSUM).

MUCH has lately been published about Liliums and their being grown out of doors with success, as if it were a new discovery. I remember gardens, one especially, where in 1844 to 1848 the varieties of this species were grown in the borders in masses of a dozen bulbs together, and also in rows in the kitchen garden. At that time, as old gardeners will remember, bulbs were in great demand. Who that has ever had the pleasure of going round the late Mr. Groom's garden at Clapham can forget the appearance of his show house in the early autumn with Liliums, or the large bed planted with them in his garden ? Large numbers of fine bulbs which were not required by Mr. Groom used to pass into the hands of a well-known florist of that day, and the way they were managed was as follows.

In order to increase the stock numbers of scales were carefully taken off the outsides of the bulbs, but not to reduce them too severely ; these scales were planted in a prepared bed in the kitchen garden. The soil was removed a foot deep, and the trench thus made was about three-fourths filled with a compost of ordinary peat, decomposed cow dung, leaf soil, and sharp sand well mixed. On this a thin layer of silver sand was spread, and the Lily scales were inserted upright covered with 2 or 3 inches of soil, and a temporary frame was placed over them to throw the wet during the winter. This was removed in the spring, and in the following October a fine lot of young bulbs of various sizes were carefully taken out and afterwards planted in rows. The largest and plumpest of the bulbs, which had been deprived of their scales,

were placed in a wheelbarrow and taken to the flower borders. When the head gardener had marked out the situations a man followed and dug a deep hole, in which was thrown a shovelful or two of old partly decomposed cow manure which was mixed with the soil, then followed a few shovelfuls of the compost above mentioned, and on this the bulbs were planted, then more compost, and finally the ordinary soil. A label was placed to each clump. The small bulbs were next attended to. A trench was made as for Celery, manure was dug into the bottom of the trench, the compost was wheeled into the trench upon the manure, and the bulbs planted in rows. I have frequently planted small bulbs the size of walnuts, and taken them up in October as large as a cricket ball and almost as solid. The past season a friend of mine has been trying a similar practice with *L. auratum*; he was successful, and says he had one or two bulbs as large as a quart jug. He also mentioned having two varieties of *L. auratum*; one blooms five weeks before the other, is dwarfer, and not so good as the later one.

I have often heard of late years that the white *L. lancifolium* or *L. speciosum album* is gradually dying out. I am now able to say something on the point. Old gardeners who recollect the handsome *Liliums* grown thirty or forty years ago in pots 10 or 12 inches in diameter, the plants being 5 or 6 feet high and bearing twenty or thirty large blooms, will be able to understand how pleasing it was to me to see plants of the varieties *album*, *rubrum*, and *punctatum* in such pots in the garden of Sir Humphrey Trafford, Trafford Park, some plants with thirty to forty flowers, and one specimen of *L. lancifolium album* had fifty blooms. I had not seen *Liliums* grown so well for a very long time. I believe much harm is done by spring planting and by keeping the bulbs too long out of the ground. Another cause of injury is stowing the pots away anywhere when the plants have flowered until next February or March; the soil is then shaken from the bulbs, and as fresh fibres have been produced they are broken in the operation. Is it surprising that under such treatment the constitution of the plant is ruined? If you desire to have good bulbs and good blooms pot or plant the *Liliums* from the end of October to the end of November at the latest, and if manure is employed let it be placed deeply, so that it is not in contact with the bulb.—N. I. D.

NOTES ON HARDY FRUITS.

I AM glad that "A. M. B." intends to give the Apple called Stirling Castle a trial. I am sure it will give satisfaction. I have this year added three fresh Apples on trial to my stock—namely, Yorkshire Beauty, Golden Noble, and Waltham Abbey Seedling. The object of my experiments in hardy fruits is to find those varieties which combine beauty and utility. I mean by the former, beauty of shape if not of colour; and by utility I mean size as well as good flesh, good keeping, good eating, or good cooking qualities.

One thing let me particularly impress on planters just at this time in regard to pyramids: Do not plant deeply; do not plant your tree so low as to cover with earth the part where the tree is grafted. If you do in the case of Pears this result will follow—the Pear stem will send out roots, your tree will grow fast and be perfectly barren for years; it will then be, "Plant Pears, plant for your heirs." The whole idea of a pyramid will be upset: the lower branches will die, but a huge growth will take place high up, and instead of a pyramid you will have a tall tree, in fact a standard—just what, if you delight in pyramids, you do not want. Another hint: Be sure and do not allow your man to cut off any of the lower branches. They all wish to do it—all of a less high caste as gardeners, in order to work under the tree better. This working under it, by the way, is just what is not wanted. Let the soil be only turned over a few inches deep, so that no root is disturbed, or, worse, dug up. If it be, then down go the roots into the bad soil below, and your hopes will be frustrated. Also beware lest your man dig up the roots between the Raspberry canes. I have seen in former years barrowfuls of roots dug out and removed, and the fruit deplorably injured. A hoe is all that is necessary to work between the rows. These may seem homely hints; and some, perhaps many, readers will say, "We knew all this before." Granted; but some may not, and on homely hints being taken success in gardening depends. I have after long trial given up growing Plums as pyramids. I have watched several gardens, some near London, others in my own district, and find the result the same—no crop, only at best a sprinkling. I train my Plums to walls, or, lacking room, give them to friends who have room.

With Apples I consider myself very fairly successful, and indeed we need great success if we are to compete with any chance against the Americans. Only recently I was in Bath and sought out a large fruit shop and began talking to its proprietor. I said, "You have fine Apples there." He replied, "Oh, yes! Americans.

They call them Red Baldwins. We cannot get English Apples people like so well." The same thing I observed in a Wiltshire town recently. What we ought to do, therefore, is to grow varieties of Apples which are large and handsome and of good flavour, or we shall be beaten out of the market. One or two remarks about American Apples: They will not grow in this country so fine as in America. Then I have never tasted any of the tinned American Apples which have a fine or even decided flavour. The fruit looks well in tarts, but it is tasteless; no real good flavour, not to be compared with our English varieties. If we grow abundantly—yes, and superabundantly—fine-coloured, large-sized, good-keeping, and good travelling Apples, we shall be able to hold our own. Plant each year some fresh trees of varieties you have tried yourself or know others have tried and approved. There are thousands of Apple and Pear trees which are only fit for firewood—lichen-covered, miserable, old trees, which are allowed to remain because twenty or thirty years ago they produced "such fine fruit and such a lot of it."

One other hint. I grow nothing but pyramids, but I grow them naturally. I neither summer-prune nor winter-prune. As they come from the nursery in proper form so they grow on. If a branch grows across I remove it; that is about all I do. The result is that the trees keep thin, and sun and air penetrate through them always; hence also fruiting spurs gradually but surely form. I have well-grown trees natural-shaped and thin, not stunted thickets, barren of all things except constantly increasing sticks fit only for stakes for flowers in pots.

One word more and I have done. I was obliged, from liability to take cold, to give up keeping fancy Pigeons. I dared not go all weathers into a draughty Pigeon loft. The doctor shook his head and said "No" so decidedly that appeal there was none, and to be a Pigeon fancier and not constantly be among your pets is miserable work. I then turned as a hobby to hardy fruit culture, and now for several years I have found it most interesting, and heartily recommend it to those situated like myself.—WILTSHIRE RECTOR.

P.S.—When you plant a tree I do not recommend placing long litter at once over its roots, as I think in mild rainy weather—and planting weather must be mild—it creates too much damp for the good of the said roots. However, have some near each tree to put on when hard weather comes, and again remove it when soft wet weather returns. By this means you benefit the tree, and you catch an enormous number of slugs, for in frosty weather they crawl under the litter for warmth, and on raising it you will find them on the ground. I have this day caught more than a dozen under some of my trees, where they had secured themselves, as they thought, a snug and warm berth for the winter.—W. R.

THE BLACKWOOD TREE OF AUSTRALIA.

THIS very handsome and valuable tree, *Acacia Melanoxylon*, cannot be well known in Britain, as it is not mentioned in Johnson's "Gardener's Dictionary." A plant of it grew for about a dozen years in the garden of Cromla, Corrie, Isle of Arran; but the situation was unfavourable, the ground being very wet. It was at length transplanted, but died. In the month of September last year a friend presented me with a fine young plant, which I placed in the same garden in Arran. Last winter was the most fatal to shrubs that I have known, but the *Acacia* was uninjured. This year the same friend has given me another plant of this noble tree, which I have been permitted to plant in one of the best situations at Brodick, Arran. As it is of very rapid growth, it and the one at Corrie will soon become a tall and very ornamental tree.

The following note regarding it from a report by Baron Ferdinand Von Mueller, F.R.S., kindly sent by him to me, will interest:—"The bark of this highly valuable timber tree has generally gone to waste, after from the logs the splendid wood was obtained. The bark is, however, very rich in tannic acid, and ought not to be left unutilised, although no Blackwood Trees should be sacrificed for the sake of their bark alone."

The fine Ferns *Dicksonia antarctica* and *D. squarrosa*, though as usual unprotected last winter, are in their wonted health.

The beautiful Gum Tree beside them, also never injured by frost in Arran or at Roseneath, Gare Loch, is, I believe, *Eucalyptus amygdalina*, as it appears to be identical with plants of this species raised by me from a packet of named seed which, along with nineteen others, I received from Baron Von Mueller. There is a tree of this species in Victoria 450 feet in height. Will it ever attain to this height in Arran?—DAVID LANDSBOROUGH.

HOLLOW CELERY.—This year I have about seven hundred Celery plants and out of this number I have no more than two

dozen sound heads. Some writers say over-feeding with liquid manure and a check to growth when the plants are young will cause the stems to be hollow, or allowing the plants to remain in the beds too long before planting them in their permanent place. My plants were neither fed with liquid manure nor checked when young. I have some planted with plenty of manure in the trenches and others without any, and I find all the produce is in the same state. Should this meet the eye of gardeners who have been in the same fix, I shall be glad if they will give me their opinion on the subject and suggest a remedy.—F. T.

FORCING STRAWBERRIES.

THOSE of your readers who have been preparing Strawberry plants for forcing will now have them in a dormant state, and will be probably contemplating placing a few in their forcing quarters. If it is not absolutely necessary to have them in at a particular time I would advise delaying placing them in heat as long as possible, as there is little to be gained by starting the plants into growth very early. I have started numbers in December, and others not until the end of January, and by the end of March the latter were as early as the former, and certainly superior in the quantity and quality of the fruit. Many of the flower shoots which readily commence growth in February and March, scarcely move in December and January. December must certainly be regarded as a precarious time to begin Strawberry forcing; January, especially about the end, is better, and later is better still. However, as many growers cannot select their own time, the best must be made of them at all seasons. Before placing the plants in heat it is of little consequence how much cold and bad weather they are exposed to so long as frost does not break the pots. Except to guard against this I never protect any of my Strawberry plants in winter, and the crop which I have obtained from them afterwards has never led me to suppose that this treatment is wrong. As each batch is taken in to force, the dead leaves are removed from the crowns, the surface soil is cleaned and the pots washed. I never plunge the pots in bottom heat, and I find the plants grow perfectly well without this assistance. At first they are placed anywhere about the floor of a house where the temperature averages about 55°; and after they have been a week or two there, and when they have commenced growing, they are shifted as much into the light as possible, and in a slightly higher temperature. As soon as the flower buds appear 65° is not too much heat for them, and it should not average more than this throughout all their growth. I never employ saucers or turves beneath the pots, but from the time the plants come into bloom until the fruit is gathered they are watered twice daily, and insects or mildew rarely trouble them.

In growing Strawberries in pots much depends on the supply of water. If the soil and roots are kept moderately moist at all times success will be certain. As the blooms open and the fruit swell liquid manure is given every other day, but apart from this they are treated similarly when the fruit is ripening and before it was formed. I never dry-off the plants, withhold water in the slightest, or increase the ventilation greatly to gain more flavour, as this would be sure to check the later fruit. Aphides are sometimes troublesome. For these and other insects the plants should be carefully examined before the blooms open, as they cannot be destroyed readily afterwards without injury to the flowers. A thorough syringing is one of the best modes of cleaning the plants, and this should be given before the flowers open, and again immediately after the fruit has formed. During the time the flowers are open it is an advantage to brush them over gently with a feather or soft hair brush to spread the pollen, and they should not be exposed to cold winds at this time, or many deformed fruits will be the result. As soon as the fruit has formed the smallest should be removed, leaving only about twenty-four of the best-formed and most prominent. I have allowed many more than this number to remain on sometimes, and they swelled very well, but a regular crop all through of twenty-four fruits to a pot is profitable. Those who force thousands of plants may take in hundreds at a time, and those who only grow hundreds may find a few dozens enough to introduce to heat at intervals according to the demand.—A KITCHEN GARDENER.

THE WEATHER IN IRELAND.—The weather here for some time past has been extremely mild for the time of the year. The days have been so genial as to remind us of the months of April or May. For ten days the mercury of my outdoor thermometer never fell below 46° night or day, and more generally, as at present, it stood at 56° Fahr. Outdoor Chrysanthemums, double Daisies,

Wallflowers, Anemones, Crocuses, Stocks, and Pansies, are still bright and cheerful; and the spring flowers are making great progress, that will be disastrous if severe weather comes by-and-by. The same is true of grass and the early buds on deciduous shrubs and fruit trees.—W. J. M., *Clonmel*.

OXFORD BOTANIC GARDEN.—No. 3.

NYMPHÆAS.

HAVING briefly referred to the chief interesting portions of the history connected with this Garden, a similarly cursory description of the most remarkable plants in the collection will indicate how well the various divisions of the vegetable world are represented. As will have been gathered from preceding remarks, the garden is not extensive, neither is the accommodation for plants under glass very great, and it is surprising that so large a number of species can be maintained in such satisfactory condition as that which marks the majority. About ten houses are devoted to tropical and other plants requiring such protection; most are of moderate size, and some are rather old, so that the successful treatment of their occupants is by no means easy. A new and commodious range of houses would enable the collection to be considerably increased and improved, and add much to the renown of the Garden, for many visitors are greatly disappointed in the appearance of the present structures. Herbaceous and hardy plants are well represented, some being arranged in their natural orders, and others according to the Linnæan system, while against the walls are many rare and curious trees and shrubs too numerous to particularise.

The Oxford Botanic Garden has long been noted for its collection of tropical aquatic plants, and consequently it was the house devoted to them that I was most desirous of visiting, and to which I first directed my attention. Although I am familiar with the beauty of such plants, I was totally unprepared for the magnificent display of those most charming of aquatics, the Nymphæas, which there greeted me. A large tank of oblong form was occupied with all the best forms of the genus, the majority in flower rendering the surface of the water bright with diverse shades of blue and rose, relieved by a few white blooms and the rich green elegant foliage. The flowers were very numerous, most of them emitting a powerful and agreeable fragrance, the general effect being heightened by the arrangement of tall graceful plants around the margins of the tank. This house is incomparably the most attractive in the Garden, and those who are fortunate enough to see it at such a favourable time as I did will not readily forget it. There are, perhaps, comparatively few private gardens in Great Britain where adequate accommodation can be provided for Nymphæas in large numbers, but there are many in which some may be advantageously grown either in a specially prepared heated tank or in large shallow tubs. A regular temperature between 75° and 80° both in the water and the atmosphere, good turfy loam with a small proportion of well-decayed and dried cow manure suit the majority, attention only being needed to avoid planting too deeply beneath the surface of the water. Free exposure to light is also an essential condition, without which they make slow and unsatisfactory progress, a moderately low house being better adapted to their requirements than a lofty one. This, of course, particularly applies to the tropical forms which inhabit the lakes or rivers of the East and West Indies and Egypt, where they are exposed to the burning rays of a vertical sun. But during very hot weather in this country a little shade is found beneficial for the majority, differences being observable in the amount of direct sun heat the various forms will endure, some preferring a constantly slightly shaded position.

It is worthy of remark that the North American Nymphæas and others from similar climates also succeed admirably in the warm house, though they grow freely in tanks outside during the summer. Noticeable in this respect are *N. odorata* and its variety minor, both natives of North America, and resembling our much-admired hardy *N. alba* in form and colour, possessing considerable fragrance; the variety chiefly differing from the type in size. Both these were growing luxuriantly and flowering abundantly in the Oxford tropical tank, their charming white flowers being interspersed amongst the brighter shades of blue and rose. They are well worth including in any collection either for growing indoors or out. *N. nitida* was in similarly good condition; it is a Siberian form bearing white flowers, and like those already mentioned it can be grown in cool quarters out of doors. But by far the most interesting of these hardy Water Lilies is the diminutive and aptly named *N. pygmæa*, of which a leaf and two flowers are represented in the engraving (fig. 93). They are shown about the average size, but in a warm house, as it is grown at

Oxford, they frequently become larger. This species has been stated to be a native of Eastern Siberia, but it was brought to this country about the commencement of the present century from China, where it has long been in cultivation. Although the plant has thus been in English gardens for nearly eighty years it is still comparatively scarce, a fact which is the more to be regretted as it is so well adapted for growing in small tanks in cool houses. The flowers are pure white, and the leaves a rich green tint—a pretty contrast; and were it possible to obtain some forms with blue or rose-coloured flowers they would be very welcome additions. Those who have the means and opportunity of acting upon it would do well to consider the suggestion of Mr. F. W. Burbidge in his work on the "Improvement of Cultivated Plants." He remarks that "if *N. pygmæa* were fertilised with pollen from *N. rosea*, *N. cærulea*, or other species, a race of elegant miniature *Nymphæas* might be the result," which is certainly within the bounds of probability, as some very satisfactory results have already been obtained in the genus by hybridising.

The really tropical and heat-loving Water Lilies now claim our attention, and these form the greater part of the collection under notice. One of the most handsome at the time of my visit was



Fig. 93.—*Nymphaea pygmæa*.

N. Devoniensis, a charming hybrid that originated at Chatsworth about thirty years ago. It was obtained by crossing *N. rubra* with *N. dentata* or *N. Lotus*, and is unquestionably a great improvement upon both parents. It bears very large rich crimson flowers which produced during the greater part of the year—a quality that is not possessed by many of the genus, while it is remarkable for the vigour of its growth. Altogether *N. Devoniensis* is one of the most attractive Water Lilies known. *N. Lotus* is the Egyptian White Lotus that grows in the River Nile, and of which *N. edulis*, *N. rubra*, *N. dentata* and others found in India are considered by some botanists as merely varieties. The typical form has flowers of moderate size, white tinged with pink. The tubers and seeds of *N. edulis* and some others are employed as food by the natives of the countries where they abound. Another of the Egyptian Lotuses is *N. cærulea* or *cyanea*, and this was flowering very freely, the colour being a very delicate blue tint. The flowers also possess a most agreeable fragrance—an additional recommendation of considerable value. *N. micrantha* is considered as a variety of that species; it is very pretty, but is deficient in colour and is chiefly remarkable for the buds borne on the leaves, which somewhat resemble the bulbils of *Liliums* or the plantlets produced on the fronds of some Ferns as they separate

from the parent and become new plants. *N. scutifolia* is similar to *N. cærulea*, its foliage being especially fine. The bright rose-coloured *N. rubra* has been incidentally referred to; and of all the other forms grown at Oxford I can only note one more—namely, *N. gigantea*, which represents the genus in Australia. This handsome species has very large rich blue flowers that are freely produced, and the plant is marked by its vigorous habit. It should be grown wherever sufficient space can be given to permit its unimpeded development.

While discussing the *Nymphæas* it may be remarked that they are very variable, and much difficulty is experienced in defining species and varieties, and as a consequence considerable confusion exists in the names. Some valuable characters to aid in determining the different forms have been drawn from the seeds, flower buds, and air vessels in the stems and leaves.—L. CASTLE.

THE SEASON NEAR INVERNESS.

FROM what I read in the daily papers it would seem that the weather we have been having in these parts has been more or less general all over the United Kingdom. The heavy fall of snow which occurred here on the 17th ult., covering the ground in some places to a depth of 18 to 20 inches, has been followed by a general thaw, ushered in with strong gales from the south-west accompanied with heavy showers, and for the past three or four days the rain has been so persistent as to render all outdoor work almost impracticable.

This year we had an exceptionally warm summer, and in the beginning of August there was a grand display of what is known in these parts as "the merry dancers," otherwise the northern lights, which, instead of appearing as usually seen—like a bright halo in the heavens, on this occasion seemed more like the rolling waves of a prairie on fire, chasing one after another in rapid succession, continuing, as it were, flowing onward and onward from the north to the south. This was considered by most of those who have resided long in this district as sure indications of a severe winter. In 1860, when the "merry dancers" were seen, they appeared wonderfully bright but steady, and continuing every night for about five or six weeks. The thermometer then indicated, I am told, as low a temperature as $4\frac{1}{2}^{\circ}$ below zero, and it was the severest winter known. During the continuance of the snow this year the lowest temperature registered was, I think, 8° above zero, a difference of $12\frac{1}{2}^{\circ}$ from 1860; still, we had as sharp a frost as one would wish to feel.

There is no doubt that our climate is and has been undergoing great changes; and as evidencing this I would mention that in looking over some old family letters written from this glen nearly one hundred years since, the writer—a lady corresponding with her brother who was then in India—informs him "of the Peach tree in the open having yielded a wonderful crop that season, about one hundred having come to full perfection, many of them weighing from 6 to 7 ozs., and of the highest flavour." Now this was written from Sheughlie, a farmhouse situated at the extreme west end of our Loch Meiklie, which is about seven miles or thereabouts from Temple Pier on Loch Ness, and is considered about the coldest as it certainly is the bleakest-looking house in the whole glen. It is about 300 feet above the sea level. The same lady, writing in September, 1788, says, "The harvest has been a very good one in general, a good crop, and most of it already safely got home, but we in the braes of Urquhart are rather late by reason of a late seed corn we got amongst us. I must see to rectify this in future. Cows still give a great price—£4 10s., my father's price overhead. Corry (the neighbouring farmer to West) gives £5 and £6, but he has rather a better kind—in short, these are favourable circumstances in the highlands of Scotland. Butter and cheese also give an amazing price, and yet they are coming into the art of making much larger quantities than formerly."

Now, anyone attempting to grow Peaches in the open air would be regarded as nearly a lunatic! The frequent alternations of temperature to which we are subject, together with the very scant allowance of sunshine with which we are generally favoured, totally precludes all idea of growing any fruit except that of the hardiest kind. My gardener will have it that they were better people in those days than the present, and that is why they were blest with such good seasons. Whether this be the case or not—which, like any Scot, he would be ready to argue on—it is quite evident that our seasons are altering for the worse, for rarely do we hear now-a-days "of most of the crops being safely home by September." You will note the difference also in prices ruling in those days, £4 10s. being considered a great price for a cow, which now would fetch more than three times that sum. Unfortunately the price of butter is not mentioned; but if we may

judge from a comparison with that ruling at the present time—viz., 1s. 4d. to 1s. 6d. the pound, 6d. a pound would probably be about the figure.

Should, however, the above be of interest to your readers I offer it in the hope that someone may be able to deduce from his own observations the causes to which we are indebted for the apparent great difference in climate and temperature to that of former years.—W. W. ANDERSON.

ROOT-PRUNING AND TRAINING FRUIT TREES.

No. 2.

WHERE trees have been root-pruned or lifted a top-dressing of half-decayed material should be applied, as it prevents frost from penetrating deeply into the soil. If the work is performed early in the autumn it preserves a certain amount of heat about the roots and causes them to remain in a fresh condition until spring, when they will produce moderate growth and plenty of fruit buds.

Cultivators differ very much in their opinions respecting the pruning and training of fruit trees. One recommends cutting back the shoots to thoroughly ripened wood, another advocates leaving them their entire length. Under certain conditions both would be quite right in their practice. In heated structures it is easy to ripen shoots to their extremities; and if it be desired to cover a certain space as quickly as possible every shoot could be laid in its full length, except where they would be too thickly placed; and a house is soon furnished with vigorous young trees, or the branches of old trees can soon be made to occupy a space that it would take years to fill by so much cutting back. The extension of the branches must be limited to heated structures, except under most favourable conditions. The wet and sunless summer of last year, followed by a very severe winter, taught many having glass structures, and not possessing the means of heating them artificially, that the laying-in of branches their full length ends in disappointment. In such structures this year the case is very different. Trees under my charge that retained their foliage until the end of the present month of last year, are this season stripped of their leaves and the buds are quite prominent, more so than they were last February. In dealing with these trees last year I cut back closely and left the shoots much thicker than usual. This time they will most likely be thinned more, and those remaining left a greater length in pruning.

Last winter the shoots of Peach trees were killed, in many cases down to the old wood, but nevertheless they have this season made a moderate growth of fairly ripened shoots. Should the weather this winter prove as severe as last the branches are in a better condition to withstand it, and with judicious pruning and protection in spring I think we may be rewarded with a crop of fruit next year. Like the Peach, most of the trees are full of fruit buds, and at the same time have made a moderate and fairly ripened growth; so that where it is desirable to extend the area of the trees the shoots may be left longer than usual this season.

I will next write on the summer pruning of fruit trees.—ROBT. D. LONG.

CHARLWOOD HOUSE.

THIS, the residence of Norton Spark, Esq., is situated at Huyton, six miles from Liverpool. It is not extensive as far as the grounds are concerned, yet there are many glass houses suitable for the plants and fruit that occupy them. Orchids are the principal feature, and many of them were particularly fine at the time of my visit some months ago.

The stove contained a good specimen of *Croton variegatus*, well coloured, symmetrical in form, being 5 feet through and the same high. *Anthurium crystallinum* was also grand, having fine large leaves, and in excellent condition. *Marantas*, *Ixoras*, *Dipladenias*, and other stove plants were well represented. The roof was covered with *Bougainvillea glabra* and *Clerodendron Balfourianum* in flower, *Dendrobiums* and *Stanhopeas* being suspended from the roof in baskets, and were making luxuriant growth. Passing through a Peach house, in which the trees were healthy and bearing a good crop of fruit, we entered a vinery and noticed a good plant of *Thunia alba* growing very vigorously, also fine plants of *Dendrobium densiflorum* and *D. chrysotoxum*. Suspended in baskets underneath the shade of the Vines were *Dendrobium Wardianum* and *D. crassinode*, the foliage being of immense size, and the pseudobulbs strong; these Orchids evidently enjoyed their position in the shade, with no detriment to the Vines, which promised well for a good average crop of fruit. The next house in this range had been recently planted with Roses, and contained a miscellaneous collection of plants, amongst them being a fine specimen of *Aphelaxis macrantha purpurea* in flower.

Another house was partially occupied with Orchids; a large plant of *Zygopetalum Mackayi*, which had in the early spring about eighty flowers open upon it at one time, was especially noteworthy. The Cattleya house contained good plants of *C. Mendelii*, *C. Mossiae*, *C. gigas*, and *C. Skinneri*. The beautiful and rare *Cattleya amabilis* was in flower, with its delicate pink petals and lip of the richest crimson, also the following:—*Lælia cinnabarina*; *Trichopilia suavis*, which had six spikes carrying eighteen flowers; *Trichopilia crispa*, a beautiful species bearing six large flowers; the free-flowering *Chysis Limminghii*, having four spikes and twenty blooms. This house also contained recently imported plants of the new *Lælia anceps alba*, which were starting vigorously into growth. A house was devoted to cool Orchids, and the first that drew our attention was a handsome plant of *Odontoglossum gloriosum*, having a four-branched inflorescence and about two hundred flowers. This is one of the finest specimens of its kind ever exhibited, and Mr. Sherwin was awarded a first-class cultural certificate for it at one of the Manchester shows. *Odontoglossum cirrhosum* was represented by several varieties in flower, one a fine dark variety and by far the finest I have ever seen; it had one spike and about twenty flowers open. Another had about thirty flowers. A third had one spike with eight branches or laterals, bearing fifty-two flowers; this was blooming for the first time under Mr. Sherwin's care, and is a very good variety. The beautiful *Odontoglossum Halli* with its large buff and brown flowers was represented by several plants. This I consider the finest of the dark-coloured section. One plant had two spikes and twenty-five large flowers; two others were coming into flower, one with a spike 4 feet long and the other 3 feet, the first having twenty flowers and the latter eleven. *Odontoglossum triumphans* had two spikes and sixteen flowers. Many other Orchids were represented, such as *Odontoglossum Alexandræ*, *O. Pescatorei*, *O. citrosum roseum*, and *O. pardinum*. *Disa grandiflora* was growing luxuriantly, also *Masdevallia Harryana* showing upwards of three dozen flower spikes.

An adjoining house was partially devoted to Ferns and partially to Orchids, the former filling the back portion of the house and planted upon neatly arranged rockwork, the front being devoted to the Orchids, and many were suspended from the roof in baskets. Two plants of *Dendrobium Devonianum* were in flower, having about a hundred flowers each; *D. Picardi latifolium* had fifty flowers, and *D. Freemani* thirty fine flowers; the lovely little *D. pulchellum* was also well bloomed. On the front stage we noticed a quantity of *Odontoglossum vexillarium*; some of them imported last July were showing flower freely. This lovely *Odontoglossum* is a free grower in a little warmth, and flowers profusely. *Odontoglossum Roezlii*, *Cœlogyne barbata*, and *Cymbidium Lowianum* were doing equally well. *Oncidium ornithorhynchum* had ten good leads, and produced twenty good spikes last autumn. *Oncidium incurvum* had twenty breaks, and the rare *Zygopetalum Gautieri* was doing well.

The East Indian house contained a good specimen of *Dendrobium Dalhousianum* bearing fifty flowers. This is a lovely species, and doubtless highly prized by those who have fine plants, yet the flowers are of very short duration. The old *Oncidium sphacelatum* had ten large spikes of flowers. *Cypripedium lavi-gatum* had six flowers. The plants of *Phalænopsis Schilleriana* were grand in pots. *Grammatophyllum Ellisii* was growing well; *Saccolabium Blumei majus* was also fine. The conservatory is situated at the end of this range, and contained an assortment of the usual flowering plants intermixed with good plants of *Dendrobium nobile* and its varieties, of which there are two grand forms, one having the petals and sepals all white, with a much darker spot on the lip than *nobile*. The other is much larger in the flower, and the pink markings on the sepals and petals, as well as the crimson spot of the lip, being more vivid than in the species.

I have only enumerated a few of the many Orchids which are comprised in this collection. Mr. Sherwin has a liberal employer, who takes great delight in Orchids, and all appear to be thriving well under the treatment they receive.—W. BARDNEY.

LOASAS.—Numerous as are our winter-flowering plants there are still some which are rarely seen, although worthy of attention. This is the case with the above genus, the species of which are admitted to possess both curious and attractive properties, as well as some that are very objectionable. The leaves and stems often bear numerous glands yielding poison far more irritating than our Stinging Nettle, consequently the cultivator should be careful to avoid touching them with his unprotected hands. All the species are easily raised from seed sown in the early spring in a mild bottom heat, and when the plants are large enough they

may be potted several together in light, sandy, rich compost in small pots. While growing they like a moist heat. They are of climbing habit, and are well suited for training up pillars in conservatories. After being hardened off a cold pit is adapted to their requirements, giving attention in dry weather, as they are liable to be attacked by the red spider. When in full bloom during the late autumn and winter they are very beautiful. The species I have grown are *Loasa lateritia*, beautiful and curious; *L. Herberti*, and *L. aurantiaca*, a telling plant in the greenhouse or conservatory during winter.—ADANSON.

DRACÆNAS FOR TABLE DECORATION.

AMONG the numerous plants now in demand for table decoration few excel the narrow-leaved *Dracænas* in gracefulness and general utility. They are easily and quickly grown to a suitable

size, and they endure the dry atmosphere of rooms much better than the majority of plants employed for such purposes, except some Palms. The elegance of their habit also renders them pre-eminently fitted for occupying the centres of tables, as their foliage is not too dense or too obstructive—disadvantages which appertain to the broad-leaved forms in the same genus, and to other plants with large leaves. Such qualities as those enumerated are sufficient to account for the partiality with which they are regarded by all who have employed them in decoration of the kind under consideration, and indeed they cannot be too highly recommended to the attention of those who have only the means to grow the most useful plants.

The numerous handsome hybrids that were raised by Mr. Bause and sent out by Mr. John Wills include several of the best narrow-leaved forms in cultivation. One of these, *D. jucunda*, the result of a cross between *D. limbata* and *D. concinna*, is represented in



Fig. 94.—*DRACÆNA JUCUNDA*.

the woodcut, fig. 94, which has been supplied by the General Horticultural Company. This, as the engraving shows, is an effective and graceful form, erect in habit, with narrow leaves slightly drooping towards their apex. The colour of the leaves is a bronzy green margined with bright crimson. It is remarkably free of growth, and altogether a really useful and pretty table plant. Another similarly elegant plant is *D. Ernesti*, obtained by crossing *D. concinna* with *D. terminalis*; it is rather more compact in habit than the one first described, the leaves being more arched. The colour is, however, similar, the margin being a somewhat deeper tint of crimson. *D. Sidneyi* is a third form of considerable elegance. One of its parents was the same as that of *D. Ernesti*—namely, *D. concinna*, the other was *D. Regina*; but it is very distinct, and especially noteworthy for the early stage in which the foliage become fully coloured, a quality that particularly adapts it for table decoration. The leaves are deep green,

with a purple midrib and a bright rosy margin. *D. aurantiaca*, a slender-growing and attractive form, has the same parentage as the one described last. The leaves are longer than the others, narrow, green, with a clearly defined orange-coloured margin, the young leaves being of a similar tint. *D. superba* is equally worthy of attention, for it is graceful in habit and bright in colour, the arching green leaves being edged and streaked with crimson. These five *Dracænas* would constitute a valuable collection wherever table plants are in demand.—L. C.

SOIL FOR ASPARAGUS.—If Mr. Nunns (see page 503) had dug into the beds the same quantity of Beech or Oak leaves that he did of dung I think he would have done the soil much more good. The leaves are best gathered dry in the autumn, and dug plentifully and deeply into the ground twelve months previous to plant-

ing. Asparagus does not like what is called here (Gloucestershire) a clung heavy soil. It is a good plan to mulch the beds with leaves or the remains of old Mushroom beds. Wood ashes mixed with salt form an excellent application on heavy soils.—A. TAYLOR, *Langford House*.



FOR several years past the display of CHRYSANTHEMUMS AT GARBRAND HALL, the residence of Mrs. Torr at Ewell, has been rendered by Mr. Child's skill and taste unquestionably one of the most effective in the country. This season it is as fine as usual, the great number and excellent colour of the blooms compensating for their somewhat smaller size generally, although there are examples of several standard varieties quite up to exhibition form. As was stated last year the plants are arranged in a span-roof Peach house 100 feet in length, and are trained to an improvised trellis on each side of the central path so as to form an avenue of foliage and flowers, arches crossing the path at intervals of about a dozen feet. The colours are tastefully intermingled, and as viewed from one end of the house the effect is charming. Mr. Child states that he usually has his Chrysanthemums in good condition for about two months.

— Mr. W. ROBERTS sends us the following note on PASSIFLORA CÆRULEA in Cornwall:—"Visitors to Penzance are often surprised to see this beautiful deciduous twiner bearing its fruits in midwinter. There are now several specimens fruiting well around here, but the one trained against a house in Coulson's Terrace is decidedly the most beautiful of all. At such a dull season it is quite refreshing to see the plant still covered with leaves and bearing numerous Orange-like fruits. There is another not far from the one mentioned above, in a much more exposed situation, only a few feet from the sea; it is quite destitute of its foliage, but has still a few fruits."

— THE same correspondent writes in reference to BROCCOLI IN CORNWALL:—"The Broccoli crops here are looking well, and there is every prospect of their realising a good price. Not only are the plants robust, but the greatest quantity of seed has been harvested that has ever been known to be obtained in one season. Last year one market grower only obtained half a pound of seed from half an acre of plants."

— CHRISTMAS CARDS may be thought to be outside the scope of this Journal, but a packet which we have received from Messrs. Eyre & Spottiswoode, the Queen's printers, teach us that there is a close connection between them and gardening. The illustrations, of which these cards supply a great variety, abound so much in beautiful representations of flowers, and are executed in such a superior style, that they excel in fidelity and in art the illustrations with which some professed gardening publications are adorned. Not less faithful than the floral are the natural history subjects, and the figure representations are equally works of art.

— WE have received the schedule of the BALLARAT HORTICULTURAL SOCIETY, which gives particulars of the classes, prizes, and regulations for their three annual exhibitions. It is curious to note the dates of the shows. For instance, the one fixed for October the 15th of the present year was the spring bulb show; the ordinary spring show was held on November the 18th and 19th; and the autumn show is announced for March the 17th and 18th, 1881. The prizes are generally of small amount, but the classes are very numerous. The chief display of fruit and vegetables is

at the March show, at which there is provision for all the chief kinds cultivated in England. One regulation deserves notice, and might be advantageously adopted in this country—namely, "No protest will be entertained unless accompanied with a deposit of 5s. which sum shall be forfeited if the protest is found to be frivolous."

— A DINNER, complimentary to CHARLES M. HOVEY, Esq., the eminent American horticulturist and one of the founders of the Massachusetts Horticultural Society, was given on October 30th, in honour of his seventieth birthday. Over sixty gentlemen were present, including Col. Marshall P. Wilder, who is eighty-two years of age.

— WE have received Parts 9 and 10 of LETTS' POPULAR ATLAS, which are marked by the same care and taste in production that we have referred to previously when noting the other parts of this useful work. Part 9 contains clear and well-executed maps of the West Indies, the islands differently coloured to indicate the countries to which they belong, with statistical maps of Italy and North America, the latter accompanied by an inset map of the British Islands drawn to the same scale and showing their relative proportions. Part 10 has an elaborate statistical map of Canada, showing the mineralogical characteristics of the different districts, the range of Wheat cultivation, and many other particulars of interest; a clear map of Egypt, and a similarly excellent delineation of Spain and Portugal, in which the districts devoted to the production of wines are marked in different colours.

— WE recently referred to some of Mr. H. Cannell's beautiful Salvias, particularly noting *S. Betheli*, *S. splendens* Bruanti, and *S. Pitcheri*; but there is another which we have also received from Swanley that is deserving of attention—namely, *SALVIA HOVEYI*. This, though not so brilliant in colour as the others, has large flowers of a rich purple tint, and bearing a peculiar satiny gloss that is very striking. It forms a good companion for those named above, and may be advantageously included in any collection of winter-flowering plants. It commemorates the name of the well-known American horticulturist, Mr. Hovey of Boston.

— WRITING to us on COOKING MOORE'S VEGETABLE MARROW, our correspondent "G. O. S." observes:—"Those who desire to have this vegetable in perfection at table should boil it whole, its delicate flavour is then preserved; if cut into slices and boiled it merely produces broth which is thrown away, and the insipid refuse is placed on the table."

— REFERRING to Carter's JERSEY LILY TURNIP, a correspondent states that it is superior to the Snowball. From seed sown in August he had roots ready for use in seven weeks afterwards, and "at the present time it surpasses all others in the garden."

— MESSRS. W. WILLIAMS & Co., 55, Moorgate Street, E.C., have sent us samples of their BOTANICAL DRYING ALBUMS, which appear to be admirably adapted for drying specimens of plants. The paper is of good quality, and is said to be specially prepared to obviate as much as possible the destruction of colours in flowers usually attendant on the drying process. There are two sizes, one 11½ inches by 8½, and the other 11½ by 17¼. The albums are neatly bound in cloth, constituting desirable acquisitions for every amateur botanist. The drying paper is sold separately at 2s. 6d. per quire.

— A CORRESPONDENT "A. J. B.," referring to a supposed difficulty, as expressed by Mr. Taylor on page 487, of obtaining trained trees of the WINESOUR PLUM, states that he wrote to Messrs. Veitch, and they sent him some good healthy trained trees with well-ripened wood.

— PART IV. of the re-issue of PAXTON'S FLOWER GARDEN contains two coloured plates; one a very fair representation of the beautiful Orchid *Odontoglossum vexillarium*, and the other of *Pæonia Moutan atro-sanguinea*, rather too dull in colour, together with a continuation of the "Gleanings and Original Memoranda" which appeared in the first edition.

— THE following note respecting the ANCIENT SOCIETY OF YORK FLORISTS' AUTUMN SHOW is abridged from the *Yorkshire Gazette*.—When the Ancient Society of York Florists was first instituted is a moot point, since the earlier records of its existence have been lost; but that its age is very great there can be no doubt, since an account of one of its meetings, in which it is termed "Ancient," is to be found in a file in the *York Courant* for 1760. The Society had had a very long career of usefulness in a quiet and unpretentious manner, and good autumn shows were held. Some months ago it was determined that the autumn Exhibition of this year should possess a new feature by embracing a display of Chrysanthemums, which should hold the most prominent place, whilst Camellias, Ferns, Hyacinths, and fruits and vegetables should be ranked as secondary exhibits. The Show was held in the central and large halls of the Exhibition buildings, and it took place under the patronage of the Archbishop of York, the President of the Society, and other influential patrons. In every respect the Exhibition was successful. The principal part of the Show was in the large hall, on each side of which were eight large pyramidal groups of various colours of Chrysanthemum, interspersed with other winter plants and flowers, and the sides of the hall were devoted exclusively to the Chrysanthemums for competition, and also for plants and fruits. The array of Chrysanthemums was most extensive, and nothing had previously been seen in York approaching to it in numbers, whilst in quality the specimens staged were all of unexceptionable merit. Ald. Melrose sent some plants from his conservatory, and Messrs. Backhouse & Sons displayed near to the entrance a splendid group of Coniferae. The Judges were Mr. Clayton, gardener to Mr. J. Fielden, Grimston Park; and Mr. Link, gardener to Lord Herries, Everingham Park; Referee, Mr. J. Fielden, gardener to the Yorkshire Philosophical Society. The following were the principal prizetakers—Mr. J. H. Hingston, North Riding Asylum; Messrs. Lazenby & Son; Mr. Key, Bootham; Mr. I. Smith, Layerthorpe; Mr. H. Newton, Grove Lodge; Miss Steward, Bishopthorpe; Capt. Darnell, and Messrs. Noble and Ridsdale.

— THE interesting notes on the HARDINESS OF NEW ZEALAND PLANTS, read by Mr. W. Gorrie before the Edinburgh Botanical Society in January and July of the present year, have been reprinted from the Transactions of that Society, and a copy is now before us. The notes take the form of a detailed description of the effects produced on a number of New Zealand plants at Rait Lodge, Edinburgh, by the winters from 1878 to 1880. Not only is the respective hardiness of the plants indicated, but much useful and interesting information is embodied relative to their decorative value, their products, or their peculiarities. Among the plants that escaped injury were *Fuchsia procumbens*, on a rockery; *Discaria Toumatou*; *Olearia Haastii*; *Veronica Traversii*, *V. pinquifolia*; *Chrysobaetron Hookeri*, and *Aeiphylla Colensoi*. Those injured but not killed constituted the majority, the principal being *Plagianthus betulinus*, *P. divaricatus*, *Edwardsia pulchella*, *Corokia Cotoneaster*, *Phormium tenax*, *Griselinia littoralis*, and *Leptospermum scoparium*. The following were killed—*Rubus australis* and var. *cissoides*, *Veronica salicifolia*, *V. Hulkeana*, *Arundo conspicua*, and *Libertia grandiflora major*.

— AT the ordinary meeting of THE METEOROLOGICAL SOCIETY to be held at 25, Great George Street, Westminster, on the 15th inst., at 7 P.M., the following papers will be read:—

"Report on the Phenological Observations for 1880," by the Rev. T. A. Preston, M.A., F.M.S.; "On the Variations of Relative Humidity and Thermometric Dryness of the Air, with Changes of Barometric Pressure at the Kew Observatory," by G. M. Whipple, B.Sc., F.R.A.S., F.M.S.; "On the Relative Frequency of Given Heights of the Barometer Readings at the Kew Observatory during the Ten Years, 1870-79" by G. M. Whipple, B.Sc., F.R.A.S., F.M.S. As the list of Officers and Council for the year 1881 will be prepared at the next Council Meeting, it is requested that those Fellows who wish to suggest names for the new Council will send them in before the 15th inst.

— OUR correspondent "W. J. M." refers to PELARGONIUM MARGARET PONTON as follows:—"Of all the Zonals for winter blooming I know of none to compare with Bertrand's Margaret Ponton. Though generally classed as salmon-coloured the eye is more of a bright scarlet pink; there is a large pure white margin, and when grown in a comparatively small pot and with rich sandy soil, and given an occasional supply of liquid manure, it will bloom profusely during the winter months. It has been blooming with me since July, and promises to continue for months to come, with only ordinary care."

— NEW ROSES.—The Rose referred to by "J. B." on page 512 as "Madame Levette," is no doubt Madame Etienne Levet, a Hybrid Tea sent out by the English Rose-growers in the spring of 1879. The following new Roses may, I think, be safely added to your list of good varieties—viz., Claude Bernard, Jules Chrétien, Louis Doré, Pierre Carot, Souvenir de Madame Robert, Rosy Morn, Lord Beaconsfield, Paul Jamain, Souvenir de Victor Verdier, Egeria, Madame Eugène Verdier, Catherine Soupert; and Bennett's Pedigree Seedling Roses, notably Beauty of Stapleford, Hon. George Bancroft, and Viscountess Falmouth.—WM. WALTERS, *Burton-on-Trent*.

PORTRAITS OF NEW AND NOTABLE PLANTS.

DRACONTIUM CARDERI.—"The genus *Dracontium*, as restricted by Engler in his recent Monograph of the Aroidæ, includes the wonderful *Godwinia Gigas* of Nicaragua, and consists of this and two other species, natives of N. Brazil and Guiana; to these must be added *D. Carderi*, which extends the geographical range of the genus to the United States of Columbia, and which differs from its congeners in the smooth petiole and very long peduncle. It was discovered by the traveller whose name it bears, and was imported by Mr. Bull, who flowered it at his establishment in Chelsea in April, 1879."—(*Bot. Mag.*, t. 6523.)

HIBISCUS SCHIZOPETALUS.—"This singular and beautiful plant has attracted much attention, on account both of its horticultural and botanical interest; differing as it does from all other species in the remarkable character of its petals, and yet presenting so many points of resemblance to a world-wide garden favourite whose native country is unknown (the *H. rosa sinensis*), as to have suggested its specific identity with that plant. The differences, however, between this and *H. rosa sinensis* are a great deal too many and too important to render the idea of this being a sport or variety of that plant tenable. They are, firstly, the petals, which, however, might have originated as a sport; then the pendulous flower, the suppression of the epicalyx, the longer tubular calyx with obtuse lobes; above all, the long fruit with small smooth seeds. For the discovery of this fine plant we are indebted to our indefatigable correspondent, Dr. Kirk, H.B.M. Consul at Zanzibar, who found it first in 1874 on the coast hills at Mombasa, in lat. 4° S.; in 1877 at Kilwa, in 7° 40' S.; and, lastly, at Lindi, in 10° S. It grows both in dry rocky slopes and in damp mountain glens, in dense shade, amongst Bignonias, Balsams, and Ferns."—(*Ibid.*, t. 6524.)

CRINUM PURPURASCENS.—"This is a very distinct *Crinum* of the star-flowered set from West Tropical Africa, remarkable for its dwarf slender habit and very numerous spreading narrow undulated leaves. Its alliance is with the Himalayan *C. amœnum* and *pratense*, and the New World *C. americanum* and *crubescens*. It was introduced in the time of Dean Herbert, and is carefully described in his classical work on the Amaryllidaceæ, but has never been previously figured. It grows at a low level by the side of streams about Fernando Po and in Old Calabar, and,

of course, requires stove heat for its successful cultivation."—(*Ibid.*, t. 6525.)

SCABIOSA PTEROCEPHALA.—"A densely-tufted perennial, forming large low cushions, perfectly hardy, and when in flower very ornamental. It has been long cultivated in Kew in the open border of the herbaceous ground. It is a native of the mountains of Greece, growing in dry rocky places at elevations of 3000 to 6000 feet, and extends from the Ionian Islands (Mount Nero in Cephalonia) to Mount Athos in Macedonia, and Parnassus in Attica. At Kew it flowers in July and August."—(*Ibid.*, t. 6526.)

CALOCHORTUS PULCHELLUS.—"The Calochorti, of which between twenty and thirty species are now known, belong exclusively to California, British Columbia, the Rocky Mountains, and Mexico, and one and all seem to require greater heat than an English summer gives them to mature their bulbs properly. The present species and *C. albus* are well marked from all the others by their more robust habit and numerous large drooping globose flowers, which never expand fully and are much less fugitive than in the more brilliantly coloured *C. venustus* and its neighbours. Calochortus and Cyclobothra slide into one another so gradually that it is not worth keeping them up as distinct genera. *C. pulchellus* was one of those introduced by Douglas about 1830, when travelling for the Royal Horticultural Society, and was originally described and figured by Mr. Bentham half a century ago."—(*Ibid.*, t. 6527.)

PEARS IN CHESHIRE.

"WILTSHIRE RECTOR" asks for the experience of amateurs respecting Pears grown as pyramids. It takes many years to form any experience that is worth having. In the first place, the trees are several years before they begin to bear, and when they are in a bearing condition you must have several crops before you can form a fair opinion concerning the quality of the fruit. I have found that no fruit varies so much from year to year. Some few varieties, it is true, appear to be pretty constant—Marie Louise and Winter Nelis for example. Both of them I grow against a wall. The former is a shy bearer as a standard, and the fruit is of course smaller, but the quality is good. I have not tried it as a pyramid, but it is a straggling grower and requires careful pruning, so I prefer to grow it, if away from the wall, as a standard. Winter Nelis cankers as a pyramid, and I have been obliged to graft it with another variety. Other varieties, however, vary much with the season, being in one year so bad that you feel inclined to root them up, and in another good enough to win a reprieve.

I have not yet discovered many varieties which do thoroughly well without a wall to help them. My experience, however, is at the service of "WILTSHIRE RECTOR," though I fear it will not be of much use to him, since my soil and climate must differ considerably from his. Jargonelle, for instance, which he describes as the Gloire de Dijon among Pears, is anything but satisfactory here. As a pyramid it cankers badly, and the fruit is nothing to speak of. Grown against a wall, as "WILTSHIRE RECTOR" grows it, it would no doubt be much improved, but I devote all my wallspace to winter Pears of higher quality. I should not place Jargonelle in the first dozen, perhaps not in the first twenty. Williams' Bon Chrétien I grow as a standard. It is a healthy grower and good bearer; as a fruit I do not like it, but it comes in at a useful time. Seckle as a pyramid would be small and probably unhealthy; grown against a wall it is of good size and very delicious: so very distinct as to be almost indispensable in a collection. Beurré Diel grows well here as standard or pyramid, but the fruit is apt to crack and does not always ripen satisfactorily. When well grown and ripened this is a fine-flavoured juicy Pear. Louise Bonne of Jersey with me grows excellently, and is a thoroughly good bearer as a pyramid; indeed, if the fruit were a little better I should describe it as thoroughly satisfactory. The fruit is moderately good, but is not of the highest class. I have found it answer to gather this Pear before it is quite ripe; if left too long on the tree the flesh is apt to become mealy.

Now to speak of some others not mentioned by "WILTSHIRE RECTOR." Has he tried Doyenné du Comice, Comte de Lamy, Thompson's, Beurré d'Arenberg, Glou Morceau, Beurré Superfin, and Beurré d'Amanlis? These all do well with me as pyramids or standards, and the fruit is very superior. Glou Morceau, oddly enough, does better here in most years as a pyramid than against a south-east wall. It is not so large of course, but ripens better, and is altogether a better Pear. Doyenné du Comice is a very fine Pear and healthy grower; I have not had it long enough to say if it is a good bearer, but am told that it requires time. I have two different trees both named Beurré d'Arenberg, but very different both as to growth and fruit. One is a slender grower,

but quite healthy against a wall, bears large fruit of first-rate quality, and this year is quite my best Pear; the other, a strong and healthy grower, does well as a pyramid, is a good cropper, and the fruit is very useful. I think this is the true Beurré d'Arenberg. Beurré d'Amanlis is usually good, but when the fruit is extra large it is apt to be coarse. Maréchal de Cour I have discarded; the fruit was not good enough. Bergamotte Esperen does well with me against a wall, but I rank it inferior to Winter Nelis and Joséphine de Malines, which ripen with it. Winter Nelis is my type of a good wall Pear; it is first-rate in every respect. Beurré Bosc I have tried several seasons, and have at last condemned it as not good enough. Brockworth Park has fruited this year for the first time against a south-east wall. It is something like a Louise Bonne of Jersey, but inferior. It, too, is condemned. I am trying many other varieties, but as yet have no further experience to offer, except that I have been obliged to do away with Knight's Monarch as a pyramid. I never could ripen the fruit; it constantly fell off before its time and shrivelled.

As to Apples, if "WILTSHIRE RECTOR" wants a really first-rate kitchen and dessert variety let me strongly recommend Maltster. As a dessert Apple it is A1, while it is also very good for baking. It should be allowed to hang on the tree as long as it will, and is then scarcely inferior to a Newtown Pippin. I have found the Calville Blanche on the French Paradise stock quite worthy of a place on the best wall. It is a sure cropper, and the fruit very fine.—CHESHIRE RECTOR.

NOTES ON BIRDS—TRAPPING BULLFINCHES.

"WHEN a man has a hobby he is apt to ride it a little too hardily." So wrote "A PARSON" in a neighbouring county on page 310, April 22nd. This is no doubt true in many cases; and I would not venture to ride mine again so soon over the pages of the Journal—although I am pleased to find I have interested at least two readers—were it not for the suggestion of Mr. Harrison Weir on page 460. It is not my wish or intention to carry on a paper war over so trifling a matter as the bill of the blackbird with so eminent a naturalist, whom all must admire who have seen his excellent life-like drawings of birds and animals; still I find it hard to give up honest fixed ideas, and must retain my opinion, from observation on hundreds of specimens I have handled, that the variation of colour of bill and plumage in this locality is due as a rule to age. Sometimes we have exceptions in colour, as I have a pied specimen nearly half white, and I have read of white ones. A pure white house sparrow was reared here a few years ago; a cream-coloured starling was also reared in this neighbourhood.

Mr. Harrison Weir's communication opens up so many subjects of interest that I hardly know which to reply to without going through the whole, which I shall not be able to do on this occasion, but must confine my remarks to the bullfinch. He asks, How are they best trapped? As no one has replied to it, and I have ventured on two occasions in the Journal to advise catching, I feel it a duty to give my experience, as theory without practice is not worth much. The statement made on page 436 that bullfinches are unusually plentiful this autumn is being borne out by numbers which I was hardly aware of, as acting myself upon the advice then given I commenced catching those which were visiting me, and during the last three weeks I have cleared my garden of exactly a score. As we are so accustomed to the annual grumbling and writing in the Journal about fruit buds being destroyed in the winter by bullfinches, I believe it will prevent most of it if gardeners will adopt the means I have, and will probably save tons of the best fruit, as bullfinches are no mean judges of the best Plums, my Green Gage, Golden Drop, and Damson buds always being preferred to the somewhat insipid Orleans. Those readers of the Journal who have the number for April 29th, 1880, page 336, will find that I stated I had only been troubled with one bird during the last two winters. As the spring advanced the sprays on my Gooseberry bushes referred to, which had been attacked, stood out bold and clear with scarcely a leaf on, like "churchwarden" pipe stems, and looked very conspicuous, as the foliage was developed on the other part of the bushes.

I find the best way to trap bullfinches is to procure a caged bird. I borrowed one for a start this year, also what is known as a trap-cage, putting the tame bird in the lower part, placing a bunch of Blackberries or Privet berries in the top part; hang the cage against a wall or tree out of the reach of cats. I have reserved a stock of bunches of Blackberries by inserting their stems in water Grape-fashion for a succession of food for bait (see page 336 above referred to). I have also caught scores, if

not hundreds, on birdlime, but this injures their plumage and is somewhat troublesome, especially to anyone not accustomed to handle it. I have also caught them in a bat fowling net at night out of thick hedges. I find a trap cage or cages best, for bullfinches generally go in small parties, and I have taken two out at once from two separate cages, while others waited round and were caught afterwards.

The well-known and easily imitated call of the bullfinch at this season of this year appears to have a greater attraction—for what reason I cannot say—than at any other period; there is also a great difference in individual call birds. The best should be

selected. When fresh caught bullfinches are best placed in a low kind of box cage about 6 inches deep, with wires only on one side. Such cage may be easily made out of a soap box from the grocers, giving them a good supply of canary and hemp seed and water. If they refuse to eat the seed, which sometimes happens, give a few Blackberries or such other food as they feed on at the time; the seed of the Dock is always a favourite dish in the winter, and the probability is in a day or two they will take to the seed, which should be strewed over the bottom of the cage. In a few days they may be placed in store cages in an aviary or sold. There is always a demand for them as pets, although their



Fig. 95.—HERO OF LOCKINGE MELON.

natural song is not pleasing; they soon become very familiar, even more so than a life-long-caged canary. I well remember when a boy hearing the first over my head in a Larch tree, and how I longed to have the bright-breasted fellow for my own; since then how many have been taken to Birmingham during the cattle show weeks and sold I know not, but I generally used to take enough to clear my day's expenses, and that is what I wish to impress upon the minds of the readers of the Journal. Instead of grumbling at the depredations of the birds and shooting them, and the fruit trees at the same time, catch them and turn them into cash on the score of economy and humanity.

I may have some remarks to make upon the tit family at some future time, and should like to hear the opinion of other bee-

keepers respecting the bee-killing propensity of these birds. I am of opinion that Mr. Harrison Weir is mistaken when he says they have "eaten all my bees," unless a very limited stock.—
JAMES HYAM, *Worcestershire.*

HERO OF LOCKINGE MELON.

THIS fine new Melon was raised by Mr. Atkins, gardener to Col. Loyd-Lindsay, M.P., Lockinge Park, Wantage. The raiser informs us that he obtained this Melon by first crossing Colston Basset with Read's Scarlet-flesh, then crossing the variety so produced with Gilbert's Victory of Bath. Mr. Atkins, in a letter before us, describes the Hero of Lockinge as of sturdy habit, a

good setter, the fruit being very deep in the flesh, which is of a whitish colour, melting, and of rich quality. He intends growing it largely next year. Externally the fruit is very handsome, being bright golden yellow, distinctly and chastely netted with pure white. It is of medium size, globular and symmetrical, and was awarded a first-class certificate at the Reading Horticultural Show in August last; it also received the first prize in its class, and the high encomiums of the Judges. Messrs. Sutton & Sons have received the stock of this Melon for distribution, and we are indebted to them for the accompanying accurate representation of the fruit that was certificated.



HARDY FRUIT GARDEN.

THE Apple and other orchard trees should now have whatever attention they may require in pruning and thinning-out superfluous branches, spurs, and dead wood. The thinning of the heads will require to be done with considerable care, as to take out a quantity of wood at once would only cause a number of shoots to be produced in the following season, and these will crowd the head with much useless wood. Confine the thinning to cutting out growths that cross each other, and where they are crowded or weak. Moss or lichen may be removed from the stems and branches of aged trees by scraping, and afterwards dressing with strong limewash, or with brine; add 1 lb. of soft soap to every gallon of brine, and apply it with a painter's brush. The brine is preferable to limewash, which is unsightly, and if used should have the addition of a portion of soot. Gooseberries and Currants are too often neglected in pruning at this season on account of the danger of the destruction of the buds by birds in severe weather. In pruning it must be borne in mind that the Gooseberry bears chiefly on the young wood of the present year's growth, and on spurs; where the young wood has been shortened back the growths should be moderately thinned, those not required spurred-in, and the long shoots shortened so as to form a symmetrical bush. Pendulous varieties may be encouraged to make more erect growth by keeping a clear stem, and shortening the points of the lower shoots so as to keep the fruit when in bearing clear of the ground. Red and White Currants may be spurred-in to the main branches, those not being more numerous than requisite to form a well-shaped bush, keeping the centre open, so as to admit light and air to the fruit. Black Currants give the finest fruit from the young wood, which should be encouraged by thinning-out the old growths, shortening the upper branches where required. After pruning the bushes and clearing the ground a dressing of manure must be spread over the whole surface (unless the bushes grow too luxuriantly) and be lightly forked-in, except in the case of young trees, which will admit of cropping between, when the ground may be worked deeper. Where the roots are mutilated annually they are driven downwards, resulting in a superabundance of half-ripened strong shoots, producing little if any fruit. The Raspberry is one of the most useful of small fruits, and prefers a moist soil, but free from stagnant water. Ground intended for new plantations should be deeply trenched and well manured. The mode of training is variable, some using stakes of 4 to 5 feet above ground, and cutting back the canes to the same height; others tie the selected canes, dispensing with stakes. Some growers tie the ends of one set of canes to those of the next stool in the line, so as to form an arch of the bearing canes; and others, again, merely thin-out and shorten the canes, leaving them loose, with the exception of surrounding the plantation with a line of tarred string or wire supported by stakes to maintain the outside canes in position; and some adopt the best plan of all—viz., securing the canes to light rails or wires formed similar to espaliers, and about 5 feet in height. As soon as the pruning is completed manure the ground and have it dug or pointed over. Among the varieties Red Antwerp, Carter's Prolific, and Fastolf are the best. If a yellow be wanted Yellow Antwerp is good. Autumn-fruiting Raspberries are a most useful addition to late culinary fruits. October Red,

Belle de Fontenay (red), and October Yellow are good free-bearing varieties. They may now be cut down close to the ground, having previously taken up any straggling canes if any are needed for planting, afterwards giving a good dressing of half-decomposed manure, merely pointing it in. The canes should be thinned in early summer, so as to induce a strong growth in those retained and insure an autumn crop, which is borne on the young growth of the current season.

KITCHEN GARDEN.

Forcing Department.—Where large supplies of French Beans are required a suitable structure should be devoted solely to them, in which the seeds can be sown and plants grown in beds under conditions that will afford much more satisfactory results than from pots. A bed of 10 to 12 inches depth should be provided of rich light soil, sowing the seed in rows about 18 inches apart. The front of Pine beds may be utilised in this way for single rows, sunshine having free access, making a border about a foot wide and 10 inches deep, which will yield satisfactorily if properly attended to with water, mixing a little guano with it occasionally, or some other stimulant. In accordance with the demand continue successional crops of Asparagus, Seakale, and Rhubarb, and prepare fermenting materials for advancing succeeding supplies. Make up beds of leaves and litter in pits and frames for Potatoes, Carrots, and Radishes. The Carrot and Radish seed should be sown in alternate rows in shallow drills about 4 inches apart, using fine rich soil. Early Nantes and French Forcing are suitable varieties of Carrots. As soon as the seeds vegetate, especially those of Radish, ventilation must be freely attended to. Insert sets of Potatoes in leaf soil in boxes, placing them in a house where there is a moderate temperature preparatory to planting in the beds. Myatt's Prolific and Veitch's Ashleaf are suitable varieties. Rhubarb and Seakale in Mushroom houses must be abundantly watered when necessary. Asparagus in bearing should be liberally ventilated when external conditions are favourable. Admit air freely to Lettuces, Endive, and Cauliflowers in mild weather; but during severe weather they will not suffer any damage if the coverings are left on for several days. Heated pits containing Lettuce and Endive require regular attention in ventilation.

FRUIT HOUSES.

Pines.—If a supply of ripe fruit be desired in May and June, and a sufficient number of plants are not showing fruit to meet such requirements, it will be necessary to take some of the plants from those which were started last March and are now in a state of rest. Select the best developed plants of the Queen, Enville, and Providence varieties, such as appear most likely to produce fruit when subjected to a higher temperature. Do not, however, start more plants than are needed; they will throw the fruit up more readily and be much stronger if started a month or six weeks hence. If the plants cannot be placed in a compartment to themselves a light position in the house where the fruit is swelling off should be given them, continuing the routine as before advised.

Peaches and Nectarines.—Fire heat will now be necessary in the earliest house if all the preparations for forcing have been made; but the night temperature must not exceed 40° to 45°, and 50° in the daytime artificially until the blossom is well advanced, when the heat may be gradually increased to 45°, not exceeding 50° at night, and 55° in the daytime from fire heat, ventilating freely above that temperature. The trees may be syringed daily until the anthers show, then confine the damping to surfaces in the house. A little air may be admitted at night to prevent a close vitiated atmosphere, which is unfavourable to the proper fertilisation of the blossoms. See that the borders inside do not become too dry. An excessively dry condition of the soil may not cause the buds to be cast at once, but they may drop later instead of swelling.

Cherry House.—With a view to obtain ripe Cherries at the end of April, or from early May onwards, the house must now be closed. If the border be deficient of moisture a thorough soaking of water should be given. Syringe the trees and surfaces in the house early on fine afternoons. Fire heat will only be necessary to maintain the night temperature at 40°, a couple of degrees less being better than over that temperature at night; 50° in the daytime is suitable, from

above which ventilate, allowing a free circulation when the temperature is above 55°. Employ no fire heat unless it is absolutely necessary, and even then be sparing, as too much in the early stages is fatal to the prospect of a crop of fruit.

FORCING HOUSE.

The demand for flowers for indoor decoration has greatly increased of late years, the gardener often experiencing much difficulty in keeping pace with the demand; and though many plants can be brought into bloom in the stove and are attractive, yet some are totally unsuited for cutting and decorative purposes, as they cannot be removed to the colder and drier atmosphere of rooms. Hence the necessity of selecting such as naturally flower early, and can be forwarded with little fire heat in a light airy house and a temperature of 55° to 65° artificially. If there is a pit that can be filled with fermenting leaves it will be an advantage, lessening the necessity for fire heat, and affording mild bottom heat to such plants as Lily of the Valley and Tuberoses. In order to supplement the regular supply of flowers afforded by the winter and spring-flowering occupants of the stove and greenhouse, a forcing house for such as the following is essential to meet the demand. For the conservatory Rhododendrons are unrivalled, selecting those that flower early, as *Nobleanum*, *caucasicum album*, *limbatum*, *coriaceum*, *Purity*, *altaclerense*, *cardinale*, Mrs. John Clutton, Michael Waterer, Lady Armstrong, Cynthia, Everestianum, Scipio, Mrs. Fitzgerald, Glennyannum, Broughtonianum, Sir Robert Peel, Mars, &c., not omitting Early Gem and fragrans. For association with Rhododendrons Azaleas are indispensable, producing bright sweet flowers for cutting, especially *A. pontica*. *A. mollis* and its varieties are superb, and should be grown by everyone, but for durability the double *narcissiflora*, yellow; Graf van Moran, pink; and Van Houtte, yellow and red, are matchless, and hold a high position for forcing. *Kalmia latifolia* and *K. myrtiflora* afford elegant delicate waxy flowers, and are usually much appreciated. *Laurustinus*, with its natural disposition to bloom during the winter, is easily induced to open its flowers in a little heat; much may be written in its favour, indeed plants are beautiful in the conservatory. Lilacs are, of course, very useful; Charles X. has large flowers, but to be white requires to be grown in the dark, the common white and Persian Lilac not needing such treatment. The Guelder Rose is valuable for forcing, but finer still is the Japanese *Viburnum plicatum*, having globular heads of white flowers. The double Plum (*Prunus sinensis alba flore-pleno*), is useful, but not equal to the indispensable *Deutzia gracilis*, which is likely to find a rival in *Staphylea colchica*, its terminal panicles of white flowers being extremely ornamental. *Spiræa Thunbergi* flowers very profusely, but is not of great endurance. Sweet Briar is usually in request for its scent and sprays for cutting. *Daphne Cneorum major* is also valued for its rosy pink deliciously scented flowers, but it must not be brought on too quickly. *Dielytra spectabilis* is fine for any purpose. Pinks are always acceptable, and should be assigned positions near the glass. Blue is a colour by no means common in forced plants, but it is readily afforded by *Myosotis dissitiflora*, which blooms for a long time in a light airy position in a temperature of 50°. *Hoteia* (*Spiræa*) *japonica* cannot be too highly extolled; no other plant is more elegant and graceful, nor endures more cutting. A first batch of the above-named plants should be introduced, damping them occasionally overhead on bright afternoons, and available surfaces two or three times a day, commencing with a temperature of 50° artificially, increased in a fortnight to 55°, allowing an advance from sun heat of 10°. Plants of every description, even if hardy, intended to be forced should at once be protected from frost, as there is no advantage in allowing them to become frozen.

Where Hyacinths and Narcissuses are required early a few of the earliest potted may be placed in heat. They should be assigned positions near the glass; but if they have only recently been removed from the usual plunging bed of ashes they must not be at once submitted to the full influence of light, or the growth will be crippled; small flower pots inverted over them will at first admit enough light through the hole in the bottom, tilting the pots after a few days, and when the advancing growths have gradually become green remove the pots altogether. Crocuses must be allowed to come on

gradually, being kept near the glass in a temperature of about 50°. Scillas should be treated similarly. Lily of the Valley must be introduced at intervals to maintain the supply. At this early season bottom heat (80°) is essential to certain growths, especially for imported crowns or clumps, covering them about 2 inches deep in the plunging material, and when the flower spikes appear invert flower pots over them until the spikes are 5 or 6 inches high, when the pots can be removed, and exposure to light will soon give the flowers substance.

NOTES ON VILLA AND SUBURBAN GARDENING.

PLANT HOUSES AND FRAMES.

Hints upon Watering.—One of the greatest difficulties with inexperienced plant-growers is not being able to determine when a plant should or should not be watered. No matter how well the plants may be potted, if they be either neglected or supplied too freely they will not thrive, and in many instances will be completely ruined; hence the necessity of the grower studying their habits and attending closely to their respective requirements. Very frequently the owners of plants supply them with water regularly, and seem surprised when told that this is the real cause of failure. Among the working classes window plants are much prized, and are often well grown when once the art of watering is understood. Regular watering sometimes means giving daily dribbles; this is a very faulty practice, and equally so is that of filling the pots too full of soil, instead of allowing the depth of the rim of the pot. In this case the surface of the soil is soaked regularly while that part of the soil where the roots are gradually becomes dust dry, which nothing but an immersion in a tub of water will moisten. Although many plants can be restored to healthy vigour after being injured by drought at the roots—more so, in fact, than is the case with the opposite extreme—it is still a common cause of failure with *Cinerarias*, *Cyclamens*, *Calceolarias*, *Fuchsias*, *Salvias*, *Solanums*, *Balsams*, *Chrysanthemums*, *Callas*, *Camellias*, *Azaleas*, *Ericas*, *Bouvardias*, *Libonias*, and many more. None of these should ever be allowed to flag, as they will be considerably checked if not fatally injured thereby.

It is difficult to lay down any rules as to the proper time for watering, as so much depends upon circumstances. Hardwooded plants, which usually have very fine roots and are potted very firmly, require the greatest amount of judgment, as they are the most easily injured by either extreme. With the coarser-rooted plants the test of sharply rapping the pots with the knuckles is generally a safe one (the soil being dry the pot gives a somewhat empty sound); but if watering is delayed till the pots containing Heaths and Azaleas sound at all empty the chances are that many of the roots will be killed. To test these the small plants may be lifted to try the weight, and the larger judged either by the dry appearance of the soil or by feeling, and even by loosening the surface slightly. Sufficient water should always be given to thoroughly moisten the soil, so that at least a small quantity shall pass through the drainage. Owing to small shifts being given to this class of plants they are frequently potted rather high, so that but little water can be given at a time, and therefore a second supply is often needed to ensure complete moistening. If by chance any of these be found excessively dry, at once immerse them for at least thirty minutes in a pail of tepid water.

Never use water quite cold, nor, on the other hand, very warm water, as this may give a check to the roots should the temperature be low where the plant is growing. The safest rule would be to always use water raised slightly above the temperature of the house, room, or frames, and the softer the water is the better for the well-being of the plants. Much caution is required at this time of year when watering plants in unheated structures, as they lose but little moisture by evaporation; neither do the pots absorb moisture from the soil. In this case it is best to keep them a little drier than usual, watering only when necessary to prevent the foliage drooping. Bedding Pelargoniums at the present time do not require water if in a cool house or frame, as they should not be induced to grow for at least two months to come. The less fire heat they have beyond that employed to keep out frost or prevent damping the better; the same remarks apply with equal force to *Cinerarias* and herbaceous

Calceolarias, which under these circumstances will not require water very frequently—certainly not daily. Where fire heat is used to maintain a suitable temperature, Solanums, Callas, Salvias, Eupatoriums, Browallias, Abutilons, and others will require liberal waterings almost daily, especially if they are near the hot-water pipes or flues; but if the temperature during the night falls much below 50° delicate plants, such as Colcuses, Iresines, Alternantheras, and Mesembryanthemums, must be very sparingly watered or they will succumb.

In the case of Fuchsias, and indeed all deciduous plants in a resting state, give water often enough to prevent the wood from shrivelling. The wood must be plump as well as ripened. The Maidenhair Fern (*Adiantum cuneatum*) should now be resting—that is to say, should be in a somewhat cool house, and receive only sufficient water to keep the plants alive, as this will insure a strong even start in the spring. *Adiantum formosum* must also be watered sparingly if in a cool house, but in a stove may be kept steadily growing. *Adiantum farleyense* should be in a light but cool part of the stove, and be also watered carefully, or premature growth will ensue. *Caladiums* may be placed as near the hot-water pipes as possible and kept perfectly dry, the *Gloxinias* also to be kept dry and in a cold house, the same remarks applying to tuberous-rooted *Begonias*. *Begonia Weltoniensis* may be kept in a moderately heated greenhouse, or even in a window, provided only sufficient water is given to prevent the stems shrivelling. The winter-flowering *Begonias* require a stove temperature, and should not be allowed to become very dry at the roots. *Stephanotis* and *Allamandas* must now be resting or ripening, but the latter particularly ought not to be dried too much at the roots. *Plumbago capensis* may be rested in a cool house—where, indeed, it is usually grown. *Crotons* and *Dracenas* may be kept somewhat dry at the roots, though not to such an extent as to cause the leaves to fall. Young plants of these may be kept steadily growing. *Eranthemums*, *Poinsettias*, *Plumbagos*, *Begonias*, *Euphorbias*, and other plants that may be taken from a stove and placed in a cooler structure or room, should be watered with the greatest caution; in fact, they may be kept comparatively dry.

TRADE CATALOGUES RECEIVED.

William Fell & Co., Hexham, Northumberland.—*Catalogue of Trees and Shrubs*.

Putz & Roes, Erfurt, Prussia, and 50, Great Russell Street, London, W.C.—*List of Seeds*.

L. Späth, Berlin.—*General Catalogue*.

Corry, Soper, Fowler, & Co. (Limited), Finsbury Street and Shad Thames, London.—*Trade Price List of Nurserymen's Sundries*.



* * All correspondence should be directed either to "The Editors" or to "The Publisher." Letters addressed to Mr. Johnson or Dr. Hogg often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Poultry and Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Address (Subscriber).—If you write to Messrs. Ransomes, Sims, and Head, Ipswich, you will obtain the information you require.

Books (Inquirer and Field).—The work you have is a good one. You would find the "Cottage Gardeners' Dictionary" very useful. The names of the plants are accentuated as an aid to their correct pronunciation. A revised edition with a supplement of this work is in course of preparation, and the publishers inform us that it will be ready in the course of a few months.

Potting Hyacinths (J. B.).—The bulbs ought to have been potted a month ago. You must not lose a day in potting them, or they will not flower soon enough for your purpose. We cannot name plants from crushed and imperfect portions of the leaves alone.

Myatt's Ashleaf Potato (H. M.).—It was raised by Jas. Ashwin, Esq., Bretforton Hall, Evesham, by whom it was given to Mr. Myatt, an extensive

market gardener in the neighbourhood. Mr. Ashwin also gave it to Mr. Rivers of Sawbridgeworth, and he named it, for the reason stated in page 439, the Royal Ashleaf. Eventually it was placed in commerce by Messrs. Wrench under the name of Rivers' Royal Ashleaf, as they had the stock from Sawbridgeworth; but Mr. Rivers always disclaimed the right of his name being attached to this Potato.

Tydaas (J. P.).—You may gradually reduce the water after the plants have flowered, but withholding it suddenly and entirely is not sound practice. We shall publish notes on the culture of Tydaas in an early issue.

Cypripedium insigne (B. T. J.).—It is not common for two flowers to be produced on one stem, yet we have seen several examples on plants that, like your own, have been unusually well grown. We never saw a finer example of good culture than the flowers you have sent. We should hesitate to cut up the plant, as the check that would necessarily be given would prevent similar flowers being produced for some time; still, if you can separate the portion to which you refer without greatly disturbing the roots, you might succeed in your object.

Otterspool Brussels Sprouts (Inquirer).—In the trial of Brussels Sprouts at Chiswick this year the Fruit and Vegetable Committee of the Royal Horticultural Society decided that the "Aigburth" from Messrs. Ker & Co., of Aigburth near Liverpool, and the variety above named are identical.

Heating a Tank (W. M. L.).—Your sketch is unintelligible, but if you raise the tank above the pipes, and take a branch from the flow pipe through the tank, and connect it with the same pipe at a higher point or beyond the tank, the water in the pipe will circulate freely and heat the water in the tank. If the tank is small a 2-inch pipe will probably be sufficient, but if large a 3-inch pipe will be preferable; the size of pipe, however, must be determined by the extent to which the water in the apparatus is usually heated.

Vine Roots (C. B. M.).—The Vines have been carefully examined. There were no Phylloxera on them, and no signs of any having been there; indeed there were no insects at all on the portions we examined. Your representative has, however, informed us that insects have been seen on the roots, and if you will send us some of these insects they shall be carefully examined. The roots appear as if they had been in contact with some corrosive substance, still by your description the border appears to have been made correctly. Is there iron in the loam? Gas ammoniacal liquor is a powerful stimulant, and mixed in proportion of one pint to two gallons of water is safe for many crops. We do not know whether it will kill the Phylloxera, not having tried it with that object.

Wire for Vineries (T. W.).—Galvanised wire may be safely employed provided it is well painted, three coats being given in the first instance, and a fresh coat annually. Unpainted it is very injurious in some places, but not in all. Something will be published shortly on the injury resulting from this wire in some cases and not in others. Copper wire is quite safe, but much more costly than galvanised wire. We should not hesitate to use the last-named wire, keeping it well painted.

Chrysanthemum Culture (Old Subscriber).—As you are an "old subscriber" and yet "do not recollect having seen any information on the above subject," we fear you are not an attentive reader. Many articles on the subject have appeared; and if you send stamps to the publisher and ask him to send you Nos. 819, 820, and 977, you will find details for growing specimen large-flowered varieties, specimen Pompons (both illustrated), and blooms for exhibition. The price of the three numbers is 10½d. The articles referred to are written by excellent cultivators and successful exhibitors. The subject will be further alluded to in due time.

Propagating Chrysanthemums (L. H. S., Clapham Park).—If you place the plants in a light position in a warm greenhouse they will afford cuttings that will strike readily in January in a moderately heated propagating house. When rooted the tops of the plants can be taken off, and in the meantime the stock plants will afford successional batches of cuttings to be inserted as soon as large enough. By continuing this practice until May a great number of plants can be raised from a few old stools. Cuttings, or rather offsets, will strike if inserted now and the pots plunged in ashes in a frost-proof frame, but as your object is to raise as many plants as possible the plan above indicated will be preferable.

Cornflowers (Idem).—There are several pretty varieties, but the one most suitable for your purpose is, we think, *Centaurea Cyanus major*. Seed sown in good soil and a favourable position in the open ground during fine weather in February or March will produce early-flowering plants; or if a little seed is sown in pots in a greenhouse, the seedlings being thinned out and grown on a shelf close to the glass for a time, then prepared in a frame for planting out about the end of March or early in April, the plants if well managed would flower still earlier than those from seed sown in the open air. You may sow in pots now or in January. The earliest and best plants are produced by sowing in September and affording the plants the protection of a cold frame if needed during the winter.

Roses (A Subscriber).—We will readily comply with your request and name "some good Roses," but as we do not know whether you require a dozen or a hundred we are unable to submit a list that will be serviceable to you. Correspondents when requesting selections of varieties of flowers or fruit should in their own interests state the number they need. It is of no use our publishing fifty names when twelve would suffice, and to publish the smaller number when the larger is required would cause disappointment.

Fruits for a Cold District (W. W. A.).—We think you would derive advantage by noting those varieties that usually succeed well in your district and plant them. Local nurserymen are usually acquainted with the sorts that give the greatest satisfaction in the locality in which they are interested. Judging from your letter we conclude that no very late varieties of Apples and Pears could be depended on, and those that are moderately early in favourable localities would prove late with you. Dessert Apples that we think would be likely to succeed are Devonshire Quarrenden and Cox's Orange Pippin; kitchen Apple, Tower of Glamis. Pears—Jargonelle, Marie Louise d'Uccle, and for stewing Catillac. Cherries—Early Rivers and Kentish. Plums—Oullins Golden and Victoria. The Pear you sent shrivelled instead of ripening, and we are unable to identify it; it resembles a stunted specimen of *Beurré Diel*. Thanks for your letter.

Wintering Echeverias and Kleinias (M. M.).—Let the Echeverias remain where they are, giving them but little water. The offsets may be removed in the spring soon after the vinery is started, and be planted in boxes of gritty soil, which should be kept moist to promote their growth. They should be sorted into sizes, so that the large and small are not mixed together in the boxes. It is important, too, that this principle be adopted when planting them in the flower

garden. The *Kleinias* should be placed on a shelf in a warmer house, and watered to prevent their shrivelling. A warm greenhouse is suitable, and they may be afforded more heat as the spring approaches to encourage the growth of the plants and to afford cuttings. The leaves will also emit roots and form plants if very slightly inserted in sandy soil in August, or as soon as the leaves have attained their full size. This mode of increase is only necessary when a large number of plants are required, as in the London parks, where the system is adopted.

Pruning Vines (X. F.).—If the young canes to which you refer are strong, well ripened, and have prominent buds they will no doubt fruit freely, but whether they will afford better results than the old rods would depend entirely on the condition of the Vines and laterals. If the old rods do not produce satisfactory crops by all means retain a portion at least of the young canes. If you leave these canes their entire length they may probably not produce strong laterals towards the base; and the result would be, that although you obtained a good crop of fruit this year, the Vines would not be satisfactory next year, as the lower portion of the roof would not be well covered, except—and this is a very important exception—you train up other young canes from the base for fruiting next year, removing those that have borne fruit entirely, or divesting the lower portion of the weak buds, the young canes being relied on for producing fruit along the bottom of the house. The upper portion of the roof would then be furnished with two-year-old rods, and the lower portion with one-year-old canes. Another plan is to shorten the young canes, leaving them about 4 feet long, and remove the spurs from the old rods to that height, and continue the practice until the roof is covered with young canes, the old rods being removed entirely in two or three years. You will thus renew the Vines without losing a crop. If the old rods bear fairly well this would be a good practice to adopt.

The Mango and Custard Apple (C. B. A.).—The seeds might be sown now, but the young plants produced would be more likely to succeed if the sowing be deferred until early in spring. The soil should consist of finely sifted light loam and silver sand, which may be placed either in pots or shallow pans, the latter being preferable. The drainage should occupy two-thirds of the pans, and these must be plunged in a hotbed under a propagating frame or bellglass, the seeds being slightly covered with the compost and gently watered with tepid water through a fine rose. If the seeds are good they will soon germinate, and when the young plants have attained a suitable size they must be carefully removed and potted singly in small pots, employing a richer soil, and placing them in the warmest portion of the stove, where they can be shaded until growing freely. The plants can afterwards be shifted as they increase in size.

Various (Paddle).—The *Aloes* you mention are quite distinct and very easily recognised, and to enable you to determine whether those in your possession are really *Aloe distans* or not we subjoin the following brief descriptions of the two species:—*A. distans* has thick fleshy leaves 2 inches broad at their base and 3 inches long, tapering to an acute point. They are rather distantly placed on the stem, as the name implies, are of a dark green colour, and have marginal rows of white spines about one-eighth of an inch long. *A. mitriformis* is much more compact in habit, the leaves being more closely set and less fleshy than those of *A. distans*. The leaves are 3 or 4 inches broad at the base, 4 to 5 inches long, tapering, and slightly hollowed on the upper surface. On the margin there are a few spines generally, but little more than one-sixteenth of an inch in length. *Mesembryanthemum tigrinum* is one of the most distinct and attractive in the genus as regards the foliage, and could not possibly be confounded with such forms as *M. deltoideum* or any other species. It is most nearly allied to *M. lupinum* and *M. felinum*, but is very easily distinguished even from them. We are unable to recommend nurserymen who make a speciality of succulent plants; those who have plants for sale should advertise them. The glands of Peach leaves are found near the base of the blade or on the petiole, being either slightly stalked or sunk in the substance of the leaf. The characters derived from the forms of these glands are employed in the classification of the Peaches.

Chrysanthemum Sport (Chrysanthemum).—The sport is a remarkable one, as having been produced by Dr. Sharpe. The flower is creamy with a suspicion of pink on the reverse of the florets, which are broad and incurved at the tips like those of Mrs. George Rundle. In character the flower, however, resembles White Globe. The example before us is thin and flat, and if larger and fuller blooms cannot be obtained the variety will have little commercial value; but we think with high culture much finer flowers may be produced. Grow some plants well next year, disbudbing them early, and retaining about three flowers on each plant, and exhibit the blooms at some of the Chrysanthemum shows, and before the Floral Committee of the Royal Horticultural Society.

Pruning Vines (B. E. W.).—We think the plan you suggest is the best under the circumstances. Train up a young cane from the base of each Vine, and allow it to have all the light possible next summer. As the spurs on the old rods are so far apart we should secure the laterals to the main rods, and shorten them to bold buds that will grow outwards from the rod, not inwards. The wood that is left must be ripe and firm. In the spring rub off the superfluous growths when they are an inch long, or as soon as the bunches are perceived, leaving the more promising, which should be quite 15 inches apart. You will obtain more fruit by this mode than by close pruning, and in two years the old rods may be removed. If your Vines are free from insects do not peel the rods; but you cannot err by washing them with a solution of soft soap or Gishurst compound at the strength of 5 or 6 ozs. to the gallon of water, applying it as hot as can be borne by the hand with an old spoke brush. Any loose bark that is displaced by the scrubbing may be removed, that is all. Your other question shall be answered next week, which will be in ample time for your purpose.

Roman Hyacinths (W. R.).—They are of little value for forcing during a second season; they scarcely pay for the trouble. When carefully managed they only yield a small percentage of flowers useful for cutting. To be of any use after flowering liberal applications of liquid manure must be given, and the foliage kept fresh as long as possible, and the pots then placed outside. When the foliage has died down all that is needed is to keep the bulbs moderately dry until the end of August or beginning of September. They can then be repotted and treated as new bulbs, or, better still, placed thickly together in pans purposely for affording small spikes for cutting. They can also be planted out of doors, but care is required in preparing the plants, which must not be planted before the end of March at the earliest.

Market Prices (S. C.).—The extract you have sent and marked No. 1 is a copy of what appeared in the *Times* of the previous week; the other is from a penny daily paper. Both are glaringly inaccurate in several particulars, that must be obvious to any intelligent gardener. Cabbages are quoted from 2s. to 4s. per dozen, which is 150 per cent. above their selling value, as hundreds of growers know to their cost. Asparagus at the time the reports appeared was

not in the market at all. But we cannot afford space to dwell on all the inaccuracies in the extracts you have sent to us. The reports may have been correct at the time they were written, but they do not appear to have been altered with the change of seasons and of prices. You mention fruit, and especially Grapes. The prices quoted for several kinds of fruit are incorrect; for instance, Apples, Oranges, and Pine Apples—that is, accepting them without qualification. Grapes, which you specially mention, are 100 per cent. above the average prices that are given for the fruit, and it is the selling price in which you and our readers generally are interested. For extraordinary fine samples and for special purposes 10s. or more per pound are very occasionally obtained for Grapes, just as some remarkable Apples have been sold this year for 5s. each; but these prices do not represent the actual state of the markets. The prices of "large bunches" on which you ask for information probably represent some sensational exhibits which some tradesman has placed in his window, and to which he has attached a sensational price. You have good reason to be satisfied with the prices you have obtained, for they are 1s. a pound more than one of the most celebrated of British Grape-growers has realised for his produce. Grapes are really selling from 6d. to 10s. per pound in Covent Garden, but the latter price is only obtained for special samples required for special purposes, the bulk of the produce being sold at from 2s. 6d. to 7s. per pound, and of course purchased for less sums. Such lists as you have sent to us have evidently not been corrected for some time, and cannot fail to cause disappointment to those who have produce to sell.

Names of Fruits (John Shepherd).—1, Warner's King; 2, Winter Colman; 3, Red Ingestrie; 4, Northern Greening; 5, Cox's Pomona. (*T. S.*)—1, Thompson's; 2, Duchesse d'Angoulême; 3, General Todleben; 4, Beurré Diel; 5 was quite rotten. The Apple is Golden Winter Pearmain. (*H. P.*)—Beurré Diel, in excellent condition.

Names of Plants (Tonbridge).—1, *Platyloma rotundifolia*; 2, *Blechnum spicant*; 3, specimen insufficient for identification, but it resembles *Blechnum longifolium*; 4, *Pteris umbrosa*. (*No Name*).—1, *Cyrtomium falcatum*; 2, *Phlebodium sporodocarpum*; 3, *Adiantum hispidulum*; 4, *Blechnum brasiliense*; 5, *Scelopendrium vulgare cristatum*.



POULTRY, PIGEON, AND BEE CHRONICLE.

CLOVER AS A PREPARATORY CROP FOR WHEAT.

THE causes of the benefits to be derived from Clover as a preparatory crop for Wheat were formerly hidden in much obscurity, for although some of the best practical farmers found from experience much advantage in growing Clover previous to the Wheat crop, they were totally at a loss to account for it chemically. In the year 1868 Dr. Voelcker related his researches and experiments in a long and interesting essay upon the subject in the "Journal of the Royal Agricultural Society of England," and for the benefit of the home farmer we shall endeavour to lay before him not only quotations from Dr. Voelcker, but also our opinions and experience.

To have the full advantage of a Clover crop it should be grown alone. We refer particularly to the red-blossomed Broad Clover, because if grown with common Rye Grass or other Grasses we neutralise to a certain extent the benefits which would otherwise be obtained. It is also of so much importance to secure a regular plant of Clover that it is necessary to prepare the land and arrange the rotations of cropping for the purpose. It is well known that with few exceptions a full plant of Clover cannot be obtained by sowing it every four, five, or even six years—that is to say, once in every rotation; but it is usual and advisable to alternate this crop with Beans, Peas, or other leguminous crops, it being a well-ascertained fact that these are a better preparation for the cereals than the ordinary lea ground after a hay crop composed of mixed Grasses, as nearly all of these extract from the land the important elements and manures required by the cereals. After we have obtained a regular plant of Broad Clover it is of great importance that the crop should be encouraged in growth as much as possible by manures, and also protected from unfair and injurious feeding by sheep. It is of consequence, too, that the autumn growth in the first year should be promoted as much as possible. This is not customary, for the Clover is generally sown in Lent corn; but we prefer to have it in the Wheat, in order that it may grow more vigorously whilst the corn is maturing, and

also that it may not be cut so closely when the corn is reaped. We have found it profitable to cut the Wheat higher up the straw, in order that the Clover may make an after growth fit for mowing in the autumn, and we have obtained excellent Clover fodder to cut up for horses and other animals during September and October, and until the first severe frost occurs. Again, this is not only a profitable plan—available when Wheat follows a Potato, Mangold, or other root crop—in four years out of six in the southern or south-eastern counties; but it encourages the growth and strength of the Clover roots, and enables them to yield a larger increase of hay in the succeeding year, whereas if the young seeds had been treated in the ordinary way by close feeding with sheep the crowns of the plants and future buds would have been destroyed or seriously injured, and the Clover plants so much damaged that many of them would die. This leads us to a point which we shall be prepared to prove of the highest importance—namely, the growth and greatest increased weight of the roots of the Clover plants.

We must at the same time look to the management of the Clover lea after the hay crops, or even crops of seed, have been removed. On certain mixed soils it is very difficult to insure a Clover lea free from Couch Grass; it is therefore necessary that every opportunity should be taken to fork-out single bunches of Grass. This must be done not only in the root crops before the corn, but also in the young Clover seeds, in order that the land may not require cleaning as a Clover lea. There are various modes of doing this. A backward fallow, for instance, after the first hay crop, is often resorted to, or the land sometimes scarified and tilled just before the final ploughing of the lea. The point we wish to enforce is that the tillage of a Clover lea cannot be done without destroying the Clover roots to some extent. The roots of Couch may be forked-out by hand labour, as we have often done. If any horse labour is used to root out Couch it should be done by the scarifier, but only with the points on, so that the Clover roots may be left, if not wholly, yet the greater portion of them. Couch Grass is our greatest enemy in all agricultural operations; and if we allow it to remain in the Clover lea and plough it in, it so competes with the Wheat crop that a full crop is out of the question. Dr. Voelcker shows us that the food which the Clover root furnishes for the Wheat plant is also available for its enemy.

We will commence our quotations from Dr. Voelcker's essay where he says, "The fact is well known that many farmers justly regard the growth of Clover as one of the best preparatory operations which the land can undergo, in order to its producing an abundant crop of Wheat in the following year. It has further been noticed that Clover mown twice leaves the land in better condition as regards its Wheat-producing capabilities than when mown once only for hay and the second crop fed off on the land by sheep; for notwithstanding that in the latter instance the fertilising elements in the Clover crop are in part restored in the sheep excrements, yet, contrary to expectation, this partial restoration of the elements of fertility to the land has not the effect of producing more or better Wheat in the following year than is reaped on the land from off which the whole Clover crop has been carried, and to which no manure whatever has been applied. Again, in the opinion of several good practical agriculturists with whom I have conversed on the subject, land whereon Clover has been grown for seed in the preceding year yields a better crop of Wheat than it does when the Clover is mown twice for hay, or even only once, and afterwards fed off by sheep. Most crops, I need hardly observe, when left for seed exhaust the land far more than they do when they are cut down at an earlier stage of their growth, hence the binding clauses in most farm leases which compel the tenant not to grow corn crops more frequently nor to a greater extent than stipulated. However, in the case of Clover grown for seed we have, according to the testimony of trustworthy witnesses, an exception to a law generally applicable to most other crops. Agricultural experiences contradicting prevailing, and, it may be, generally current theories, are, unless I am much mistaken, of far more common occurrence than may be known to those who are either naturally unobservant or unacquainted with many of the details of farming operations; indeed, an interesting and instructive treatise might be written on the apparent anomalies in agriculture.

"Observations extending over a number of years led me to inquire into the reasons why Clover is specially well fitted to prepare land for Wheat, and in the notes which I have now the pleasure of laying before the readers of the Journal I shall endeavour, as the result of my experiments on the subject, to give an intelligible explanation of the fact that Clover is so excellent a preparatory crop for Wheat as it is practically known to be. By those taking a superficial view of the subject it may be suggested that any injury likely to be caused by the removal of a

certain amount of fertilising matter is altogether insignificant, and more than compensated for by the benefit which results from the abundant growth of Clover roots and the physical improvements in the soil which take place in their decomposition. Looking, however, more closely into the matter, it will be found that in a good crop of Clover hay a very considerable amount of both mineral and organic substances is carried off the land, and that if the total amount of such constituents in a crop had to be regarded exclusively as the measure for determining the relative degrees in which different farm crops exhaust the land, Clover would have to be described as about the most exhausting crop in the entire rotation. Clover hay on an average and in round numbers contains in 100 parts:—

Water	17.0
*Nitrogenous substances (flesh-forming matters)	15.6
Non-nitrogenous compounds	59.9
Mineral matter (ash).....	7.5
	100.0
*Containing nitrogen	2.5

The mineral portion or ash constituents in 100 parts of Clover hay consist of phosphoric acid, 75; sulphuric acid, 4.3; carbonic acid, 18.0; silica, 3.0; lime, 30.0; magnesia, 8.5; potash, 20.0; soda, chloride of sodium, oxide of iron, sand, loss, &c., 8.7; total, 100.0.

"Now let us suppose the land to have yielded 4 tons of Clover hay per acre. According to the preceding data we find that such a crop included 224 lbs. of nitrogen, equal to 272 lbs. of ammonia, and 672 lbs. of mineral matter or ash constituents; 4 tons of Clover hay, the produce of 1 acre, thus contain a large amount of nitrogen, and remove from the soil an enormous quantity of mineral matters, abounding in lime and potash, and containing also a good deal of phosphoric acid."

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses have lately been employed in ploughing and sowing Wheat every day since the 28th ult., there only now remains the light land to be ploughed and sown with Wheat. Apportion the horse power of the farm so that no ploughed land shall be left unsown in the evening in consequence of the night frosts which are sure to prevail at this time of year. We notice much land which has been under autumn tillage lying in a very foul state with abundance of couch grass on the surface. It is not good practical farming to plough this grass under with a deep furrow; the only plan to adopt is to rafter-plough and leave it until the spring, for at this date there is no hope of dry weather to enable the grass to be cleared off the surface by tillage. Where the land is clean, deep fallow-ploughing of all the land intended for Barley after Wheat will be going on daily whilst the weather continues open. The same plan will be pursued with land intended for the next year's Mangolds, Carrots, Potatoes, and Swedes. Long fresh dung may be laid out before the ploughing on good dry land for the Mangolds, Carrots, and Potatoes, especially as this will save labour of the horses in the busy period of spring and seed time. In many instances, the slugs having destroyed the Trifolium, the land may be ploughed and lay during winter to be worked fine the first dry weather in the spring, and again sown with the Early Crimson Trifolium or with summer Vetches. The land which has been dunged and ploughed if clean will require no more ploughing in the spring, but merely scarifying and sowing with Mangolds and Carrots at the earliest date.

Hand Labour.—The land occupied with Cabbages that has been autumn-planted should now be locked over whilst the weather is mild, and vacancies filled with fresh plants, as the crop will come better together than when fresh plants are set out in the spring. The water meadows must still be attended to, and the course of the water changed every four or five days, especially on those meadows where the supply of water is short. The land, if strong and flat, where the Wheat has been sown should be looked over by men with spade in hand after heavy rains to let off any accumulations before it injures the Wheat. Hedging, ditching, and banking will now be necessary in the enclosed districts of small fields. In those cases where fences are enquired to be newly planted with Whitethorn, this is a good time to do the work. Any hedges, too, intended for close trimming, where they have been neglected may be cut down and trimmed. The outlets of all underground draining should be carefully attended to, and they will easily be found by the men whilst scouring the open dykes, which ought to be well opened and cleansed at this time, so as to give free exit to flood water. All the young cattle intended for dairy stock should now be placed in sheltered yards and sheds at night; and although they may run out in the pasture at daytime, they should receive roots of some kind with sweet fresh Oat or Barley straw in the sheds. This feeding will keep them in moderate condition, and by lying in well-littered sheds it will prevent attacks of the quarter-ill, which in some seasons is very fatal amongst young heifers reared for the dairy. If any cake is given it should only be decorticated cotton cake in meal and mixed with cut roots, or with inferior hay cut into chaff. It is, however,

just a question of price whether inferior Barley in meal may be substituted for cake. All the yearling steers intended to be fattened on the system of early maturity should now be fed in the same boxes as they have been kept in during the past summer, for although they have had full allowance of green fodder as long as it lasted, they will now receive roots with cake and beanmeal mixed, from 40 to 50 lbs. of roots being sufficient for the day's allowance, with plenty of sweet Oat straw in the racks, the refuse to be used for littering the boxes. The manure removed from the cart-horse stables is too often allowed to remain in large heaps in the open, exposed to all weathers. Sometimes it is too dry, at other times too wet. Our plan of using the partially stained straw from the stables as litter for the pig pens answers a good purpose, for it not only saves straw, but it makes the manure more valuable after being trodden down and concentrated in the pig pens for a while. Where there is no covered dung pit it is well to have the manure as it comes from the stables cast into a yard where breeding sows may be kept, and thus the manure is trodden down, and the sows kept in a healthy breeding condition, with a hovel to lie in attached to the yard.

THE SMITHFIELD CLUB CATTLE SHOW.

THE Show that opened in the Agricultural Hall, Islington, on Monday last was, if not the largest, certainly the best that has been held there, judged by the average high quality of the animals exhibited. The very slight decline in the number of animals is due to a new and very commendable regulation that no animal over four years of age have admittance. Early maturity, not old stock however famous, is obviously what is required at exhibitions of this nature. The Show will be remembered not more for its general excellence than as having afforded the public an opportunity of inspecting one of the most magnificent animals that has ever been exhibited—the three-and-a-half-year-old steer with which Mr. Colman, M.P., won the champion plate of 100 guineas. It is a light roan, and was bred by Mr. James Durne of Old Meldrum, and is the result of a cross between a Shorthorn bull and an Aberdeen cow; it weighs a little over a ton, is almost faultless in form, and in prime condition. The same animal also won £25 as the best of his class, £40 in the best of his breed, £50 as the best of his sex, which, with £105 as the champion prize, makes a total of £220. Mr. Colman also won several other valuable prizes. The silver cups, value £40, were awarded as follows:—For Devons, to Mr. John Walter, M.P.; for Herefords, to Mr. F. Platt; for Shorthorns, to Mr. C. T. Lucas; for Sussex, to Mr. J. S. Oxley; for Scotch, Mr. Colman, who had similar awards in two other classes. All the cup animals were splendid, and many others were of nearly equal merit.

The sheep as a whole are a grand lot of animals, not so bulky and unwieldy as we have seen, but smart, fresh, and of undeniable quality. The cups were awarded to the executors of the late Mr. Painter for Leicesters, to Mr. J. Craddock for Cotswolds, to Mr. Pears for Lincolns, to Mr. Page for Kentish, to Lord Walsingham for South-downs, to Mr. Morrison for Wiltshire or Hampshire Downs, to Mr. Nock for Shropshires, to Mr. Cooper for Oxfordshire Downs, to Mr. Stranger for Cheviots, and to Mr. Farthing for Dorsets.

Pigs are numerous and admirably represented, attracting crowds of visitors. The cup for the best pen of any small white breed was won by the Earl of Radnor; for any large white breed by Messrs. J. & F. Howard; for black pigs by Mr. J. A. Smith; and for Berkshires by Mr. Fowler. The Queen is a prizewinner in this section of the Show.

Collections of roots are an important feature of the Show, all the leading agricultural seedsmen being represented. Messrs. Sutton and Sons have a large and imposing stand artistically furnished with splendid produce; Messrs. Carter & Co. have superior sample roots on view, and a refreshing verge of Grass growing from recently-sown lawn seed; Messrs. T. Gibbs & Co., Messrs. Webb & Sons, Messrs. Harrison & Sons, Mr. King, and others have large and excellent displays, and Messrs. Hooper & Co. a fine collection of Potatoes.

Machinery, implements, farming appliances, and household requisites of all kinds, with manures, are represented by nearly all the leading manufacturers in the country. The Exhibition, which is well managed throughout, closes to-morrow (Friday) night.

THE POULTRY CLUB.

We published a few weeks ago some important resolutions to be submitted to the general meeting of the Poultry Club, which were in the main carried. To some extent this marks a new departure in the history of the Club, and is therefore worthy of consideration. We will not now go into all the proposed methods of extending the Club's influence; that which at present claims our attention is the passing of a resolution to the effect that a circular relating to the objects of the Club is to be sent round to some seven thousand fanciers! The fact cannot fail to strike us, that the Club has survived to enter upon a new phase of its existence; no other similar poultry club has, to the best of our knowledge, ever reached this stage. Those we can recall to mind have had a year of organisation and popularity, and then a year of dissolution and decay. The present Club has lasted

three years, and is so far from extinction that it is about thus to invite public attention to its existence. Hitherto it has been extremely quiet. The now defunct Club occupied itself much with formalities; but red-tapeism has not been the error of this Club, and probably this is one of the reasons of its survival. Its numbers continue about the same as a year ago, but they do not increase. This is perhaps to be regretted, and is probably the reason why the said circular is to be issued. There are, we are sure, a large number of honourable fanciers without the Club who wish all success to its objects, and whose names would add influence to its list. Why they should hold aloof from it is a subject well worthy of consideration. Of course there are others who have a vested interest in perpetuating a bad state of things, and who necessarily detest any Club in any way likely to check their gains. They are, we believe, few, and are certainly not worth any consideration at all. Of the former, however, we should like to say a few words. Some of them have, we fear, a bad opinion of fanciers in general, and despair of this Club or any other being able to effect its object. They consider all its work as so much useless labour, in which they naturally do not wish to take part. There may in the past have been much to justify their gloomy view of the matter, but we think that their mistake is now almost capable of proof. Many more are afraid to commit themselves to any decided action; the Club may probably come into collision with certain exhibitors and managers of shows, with whom they think it more politic to be on good terms; they have not the courage to risk the possibility of giving offence to someone, and above all have a perfect terror of identifying themselves with any movement which has ever been, or is ever likely to be, abused in public print. We will not tax our readers' patience by remonstrating with what seems to us a want of moral courage, though often found in most amiable people and agreeable fanciers. The former class, however, have all our sympathy, and probably that of the Club. For them, doubtless, the circular is chiefly intended, and if any remarks of ours, based on what we can gather concerning the past history of the Club, should have weight with them it will be a source of great satisfaction to us.

At the risk of seeming to tell a thrice-told tale we go back some four years to trace the origin of the Club. Several outrageous cases of prizes being carried off by "trimmed" birds, to the injury of honest exhibitors, were on the lips of every fancier; but apart from and even before this we believe that the flagrant repudiation of their debts by some committees, and the gross mismanagement of some shows by others, had much to do with its formation. One exhibitor who took a prominent part in founding it, and who has ever since been one of its officers, had lately suffered many things. At one show most of his winners were changed for worthless specimens. He was naturally indignant; but when it was found that the lost birds were traced to a place very near the Show, a majority of the Committee refused to prosecute the matter further, and took refuge in general abuse of the sufferer. The same exhibitor accidentally discovered that at another show his best birds were kept in their baskets till the judging was over. He consulted lawyers, but was warned of the great difficulty and immense cost of collecting convincing evidence; in fact, it was seen that in such cases an individual is almost powerless against a body. "What could be done to remedy such a state of things?" It occurred to several fanciers at once to unite themselves in a friendly company, and to subscribe a common fund for mutual protection. The idea was a good one, but while the scheme was in embryo arose a general call for a more extended club, and so the lesser was merged in the greater undertaking. Its main objects then were—1, The suppression of "trimming;" 2, Mutual protection of the members against all such losses and injuries as we have related. The question now is, How far have these objects been carried out? and how far are they in a way to be still further carried out?

To the first question we answer—Read in the report of the Club, which we lately published, the opinion of the late Mr. E. Hewitt, and ask that of some of the best and most experienced judges at the late shows. Intelligent observation will, moreover, convince any person conversant with the matter that as a rule poultry are far more honestly shown than they were four years ago. If, then, there has been already this improvement, still further progress may reasonably be expected.

2. The protection afforded to members is less demonstrable, because for various reasons numbers of cases in which they appeal to the Club are not published. Documents have, however, been put before us which show that never a month passes without some member receiving redress through the Club—aye, and sometimes non-members; for it has been most ungrudging in helping fanciers external to its body. It is not many days since the threat of "disqualification" caused the managers of a show to settle at once,

and to telegraph the settlement of a claim of some standing, all applications for which made by an individual had been disregarded.

For these reasons we hope that all the well-meaning fanciers who have not seen their way to joining the Club will read the circular about to be issued, and, if they see that they are profiting by the work of their brother fanciers, will not hesitate to undertake a part of their burden.—C.

EYMORE BLACK FOWLS.

In the excellent report of the great poultry Show at Birmingham in last week's Journal I see it is stated fowls of this variety were third in the variety class, and information is sought as to what they really are. This is what many would like to know. If Mr. Gabb the owner cannot say I have no doubt Mr. Burnell the Judge will be able to tell us all about them, as I presume no judge would give any fowls a prize unless he knew what they were, and that they were thoroughly worthy of this distinction. Are they good layers and hardy, easily reared, quick in growth, and good for table?—J. MUIR, *Margam*.

YORK POULTRY AND PIGEON SHOW.

THIS Show opened on the Tuesday of this week, and closes to-night. Poultry had twenty-six classes with 333 entries, and Pigeons seventeen classes with 157 entries. The prizes were from £1 down to 5s. The poultry were in all cases shown in pairs; the Pigeons, as a rule, singly. The arrangements were on the whole good. It was a mistake, however, to put the heavier birds so high up, and the perches might well have been left out of the pens of the larger varieties. The smaller sorts and Bantams seemed to appreciate them. Mr. H. Beldon judged the poultry; Mr. J. Hawley the Pigeons. Mr. B. Kilvington, jun., acted as Steward, and it was chiefly through his promptitude in getting the awards up and courtesy to us, that we are enabled to give our report this week. The catalogue opened with

DORKINGS (seventeen).—Only a moderate class. The winners (Cannan) being rather long in leg, and the cock squirrel-tailed. Second (B. Smith) contained the best hen in the class, but she dwarfed the cockerel her mate. Third (Newall); h.c., Lord, Pounder, B. Smith; c., White.

SPANISH (eight).—First (Rawnsley) a nice pair of chickens, best in quality of face and condition, but rather narrow in lobe. Second (Cannan) an old pair, the cock large but rough in face and going blind, the hen also rather rough in face. Third (Thresh) a good old pair but not in condition; h.c., Doulton.

COCHINS.—*Buff* (fourteen).—A fair average class. First (Croft) a shapely old hen, rather mealy in colour, mated with a medium-sized cock deficient in breast; hocked. Second (Thornton) a fair young pair, hocked again; size and colour moderate. Third (C. Brown) a good pair of lemon chickens, nice in hock, but the cock too long in leg and carrying too much tail; v.h.c. (Mitchell) might have stood higher but for the cock's defective comb; h.c., Rawnsley, Pounder, Barker, Southwell. *Any Other Colour* (fourteen).—A medium class. First (Sowthern) went to a pair of Partridge, both hocked; the cock bright in colour, but too large in tail and wanting in saddle; the hen good in marking. Second (Rawnsley) Whites of fair quality, the hen being the best of the two. Third (Carr) Whites again, the cock with too much tail and a canary shade through his hackles; v.h.c. (Southwell) moderate Blacks; v.h.c., Cannan; h.c., Clayton, Ewbank, Handley.

BRAHMAS.—*Dark* (fifteen).—Taken all round this was a very poor class, some of the exhibits being the worst we have ever seen in a pen: one pair had actually well-developed single combs. The winning pen (W. Mitchell) contained the Hull cup cockerel and a moderately marked pullet of the Kendrick stamp. Second (Eastwood) a fine old cock with too much tail and too little saddle, mated with a small hen heavy in moult, brown in colour, and heavy in head. Third (Holmes) a slim pair of chickens too long in leg; v.h.c., Wilkinson. *Light* (twelve) were better as a class than Darks, but still contained a pen of pure Whites with single combs. First (Cannan) were a good all-round old pair, but that the cock was warm in colour and rather heavy in comb. Second (Williams), the cock neat in head but extremely hollow in breast; both birds very yellow. Third (Hudson) a shapely hen, bad in colour, mated with a cock of similar stamp; h.c., Edwards, Grieve.

HOUDAN or CREVE (eleven).—A fair class. First (Cannan) Crèves, the hen particularly good in crest, muffling, and shape; the cock only moderate in crest, but in good condition. Second (Chadwick) good Crèves again, lighter in build than the winners. Third (Perry) moderate old Houdans.

GAME.—*Black or Brown Reds over one year* (seven).—A very poor class. First (Cannan) moderate Brown Reds, the cock very loose in carriage of wing. Second (Chadwick) and third (Perry) Brown Reds also. *Any other colour over one year* (six).—Another poor class, the only really good pen being the first (Crofts). Second J. Walker, third R. Walker. All three were yellow-legged Piles. *Any colour, hatched in 1880* (seventeen).—A very moderate class. First (Firth) fair Brown Reds. Second, third, and v.h.c. (Thompson) Black Reds.

HAMBURGS.—*Golden-pencilled* (fifteen).—A good class. First (Rawnsley) neat in comb and lobe and good in marking. Second (Kidson) neat in head also, but not so good in colour. Third (Webster), the cock coarser in comb and not so clear in lobe, but rich in colour; h.c., Rawnsley, Digby, Kidson. *Silver-pencilled* (five).—Moderate. First (Rawnsley) a stylish pair, but the cock rather poor in colour. Second (H. Smith), cock rough in comb and very wild, but well marked in tail. Third (Carver) poor in lobe; h.c., Rawnsley. *Golden-spangled* (eleven) contained nothing wonderful. First (Cannan) rich in colour but rough in comb and stained in lobe. Second (Rawnsley) also poor in lobe, and the hen out of sorts. Third, Rawnsley. *Silver-spangled* (fifteen).—A moderate class. First (Cannan) good in marking but rough in comb and bad in lobe; as also were second, Rawnsley; and third, Dodgson; h.c., Rawnsley, Dodgson. *Blacks* (eighteen) seem to be popular here. First (Pemberton) a stylish hen, good in head and lobe, and bright in colour. Second (Rawnsley) good in lobe and colour, but the cock coarse in comb. Third (Digby), the cock bright in colour and good in lobe, but comb crooked; h.c., Rawnsley, Sidgwick, Rutherford, all fairly good; c., Gunn.

POLISH (eight).—A moderate class, both first and second going to Mr. Rawnsley with a pretty pen of Goldens rather white in crest, and a good pair of White-crested Blacks; v.h.c. (Cannan) good Silvers hardly in condition; h.c., Perry.

ANY OTHER VARIETY EXCEPT BANTAMS (twelve).—First (Hutchinson) stylish Malays, bright in colour and hard in feather. Second (Rawnsley) neat Sultans, rather short of foot feather. Third (Crewe) Malays again; h.c. (Bellerley), Andalusians; h.c. (Thurgood), Minorcas; h.c. (Anthony), White Leghorns. 321 (Foggin) a pretty pair of Silky Bantams wrongly classed.

GAME BANTAMS.—*Black or Brown Red* (twenty).—A poor class for its numbers. First (Southwell) a very neat pair of Black Reds. Second (Chadwick) moderate Brown Reds. Third (Bockitt & Dodson) Black Reds again, as also were h.c., Blakey. *Any Other Colour* (twenty) also only a moderate class. First (Cannan) moderate yellow-legged Piles badly shown. Second (Firth), Piles also willow-legged. Third (Schofield) Duckwings; h.c. (Walsham), Piles; h.c. (Henningfield), Duckwings.

BANTAMS.—*Gold or Silver Laced* (eight).—First and second (Richardson) moderate Golds. Third (Rawnsley) neat Silvers. *Any Other Variety*.—First (Cannan) Black Rosecombs, clear in lobe, and bright in condition. Second (Rawnsley) pretty White Rosecombs, nice in colour; h.c., Rawnsley, Preston, Digby, all Black Rosecombs.

TURKEYS (ten) were a good class, the winners being fine bronze birds. First Garforth. Second Edwards; h.c., Kendall, Dowell, Bulman, Chadwick.

GEESSE (twelve).—Also a fine class. The winners (Snell) were large Greys. The second (Cannan) fine Whites; v.h.c., Dodworth (White); h.c., Smith and Sutcliffe (Grey); c., Trousdale (White), Chadwick (Grey).

DUCKS.—*Aylesbury* were a fair class of twelve. First (Scoby). Second (Snell); h.c., Dodsworth, Fentriss. *Rouen* (twenty-one).—A good class containing many birds above the average in quality. First (Garforth). Second (Crofts); h.c., Snell, Stamper, Newton, Kingston, Pounder. *Any Other Variety* (seventeen).—Another good class. First (Chadwick) large upstanding Pekins. Second (Cannan) Mandarins. Third (Gunn) good Pekins again; h.c., Snell, Leng, Crewe (all Pekins).

PIGEONS.

CARRIERS.—*Cock* (six).—A moderate class. First (Robinson) a Black, as also were second; h.c., Gell and c., Booth. *Hen* (six).—First (Gell) a Dun; second (Gell) a Black; c., Bocking.

BARBS.—*Cock* (five).—First and second (Gell) were both Duns; h.c., Thurwell, Fawcett (Blacks). *Hen* (three).—First (Gell) a Dun; second (Thresh) a Yellow; h.c., Gell (Black).

POUTER (six).—First (Robinson) a Blue-pied; second (Crofts) a Black-pied; v.h.c. (Robinson) a Dun-pied; h.c., Harrison, Lund, both Blue-pied.

TUMBLER.—*Almond* (five).—First and second (Weston) were good in head, but not first-class in colour; h.c., Robinson, Martin (2). *Short-faced, any other variety* (ten).—First (Martin) a Red Agate; second (Martin) a Silver; h.c., Weston (2, Blacks), Robinson.

TURBITS.—*Blue or Silver* (eight).—First (H. Robinson) and second (Goldsborough) were both of the first-named colour; h.c., A. Robinson, Cass. *Any Other Colour* (eight).—First and second (Parkin) a Yellow and a Dun; h.c., A. Robinson, Crofts.

OWLS (eleven).—First and second (Thresh) both Blue English; h.c., R. Rawnsley, J. W. Robinson, Weston.

FANTAILS (ten) were all Whites. First A. Robinson; second Loversidge; h.c., Lawson; c., Crofts.

JACOBINS (twelve).—First (J. W. Robinson) a Red. Second (Bocking) a Yellow; h.c., Cass (a Red); c., Robinson, Bocking.

NUNS (sixteen).—First (Horsley) a Black, as also we think was second (Stanley); h.c., Cass, J. W. Robinson (2), J. B. Rawnsley; c., W. H. Fowler.

DRAGONS (twenty).—First (Shewell) a Blue, as also was second (Tate & Ewen); h.c., ditto; c., Benson, Close.

ANTWERPS (twenty-one) were a good class, first and second going to Mr. B. Rawnsley. h.c., Scurr; c., Armstrong, Ward.

TURTLE DOVES, pair (four), were all fair specimens. First (Eastwood) were Ringdoves; second (Ringrose) Whites; h.c., Ringrose; c., Eastwood.

ANY OTHER VARIETY OF PIGEON closed the catalogue with seven entries.—First (A. Robinson) were good Trumpeters. Second (Abell) Wood Pigeons. Third (Harrison) Red Magpies.

KINGSTON-ON-THAMES POULTRY SHOW.

WE attended this Show, which was held on the 2nd, 3rd, and 4th inst., prepared to make a note merely of the leading birds, but we found the exhibits in nearly all the classes so numerous and good in quality that we thought it best to give the full list of awards. Poultry numbered 360 entries without counting the Selling classes, and were divided into thirty-one classes with four prizes in each. They had ten cups, and the Pigeons a similar number. The building (a drill hall) in which the Show was held is spacious, but hardly light enough in some parts. The general management and feeding were excellent. Mr. T. C. Burnell judged the poultry, and Mr. P. H. Jones the Pigeons.

DORKINGS.—*Coloured* (eleven).—First (Warren) a good all-round pair, as were also second (Newick). Third (Rigg) moderate chickens. Fourth (Radclyffe) fair old birds. *Whites* (nine).—The first (Woodgate) also took the Dorking cup. They were best as a pair, and, indeed, of considerable merit. The hen in the second (Pilgrim) pen was grand in size and shape for a White, but her mate was not her equal. Third (Logan) a moderate pen. Fourth (Browne) a good hen, but the cock coarse in comb. *Any other colour* (six).—First (Radclyffe) a large shapely pair of Silver-Greys. Second (Virgo) rather dark single-combed Cuckoos. Third (Haddock) moderate Silver-Greys. Fourth (Clark) fair rose-combed Cuckoos.

COCHINS.—*Partridge or Buffs* (nineteen).—First-and-cup (Jenkins) a large evenly coloured pair of Buffs of the light shade. Second (Turner) a very good pair of Partridge, the hen specially well marked. Third (C. Brown) nice Buffs again, hocked. Fourth (G. H. Wood) another good pair of Partridge. *Any other colour* (nine).—First (G. H. Wood) Whites, the hen especially being good in size and shape. Second (Thompson) moderate Whites. Third (Turner) middling Blacks. Fourth (Metcalf) good Whites again.

BRAHMAS.—*Dark* (thirteen).—A very moderate class. First-and-cup (Norris) a good old pair, the cock rather coarse in comb; the hen well marked on breast and very good in shape, but wanting in body marking and short of foot feather. Second Tindall, third Turner, fourth Metcalfe. *Lights* (ten).—First (G. H. Wood) a very good pen, the hen rather soft in cushion. Second (Thurlow) had both far too much tail. Third (Wells) poor in size. Fourth (Turner) both very heavy in head.

GAME.—*Black Reds.*—*Cocks* (twenty) were not a strong class. First-and-cup for cocks (Tyler) neat in head and rich in body colour, but mossy on fluff. Second (Docksey) not so good in colour. Third (Theobald) still worse. Fourth (Docksey) splashed on breast. *Hens* (twenty-five).—First-and-cup for best hen, also cup for best Game bird (Maynard), a stylish hen, good in colour, but flat in shin. Second (Tyler) not so stylish as the winner. Third (Docksey) failing in colour on wing, as also did the fourth (Lewendon). *Brown Reds.*—*Cocks* (ten).—First (Warde) good in head and rakish in style, but not right in colour. Second Mercer, third Rowley; fourth Martin, nicely pencilled on breast. *Hens* (nine).—First (Warde) and second (Martin) both good in style and colour. Third and fourth Mercer. *Duckwings.*—*Cocks* (seven).—First (Hullett) fair shape and colour, but too much hackle; second Martin, third Thomas, fourth Hullett. *Hens* (eight).—First (Lewendon) good in style and colour; second Fenn, third Huxtable, fourth Theobald. *Pile.*—*Cocks* (five).—First (Foster) neat head and good shape, but only moderate colour. Second (Theobald) large and rather heavy. Third and fourth Warde. *Hens* (ten) contained nothing remarkable. First Warde, second Theobald, third Adams, fourth Warde.

SPANISH (four).—First-and-cup (Brown) a very neat pair of chickens, face and lobe of good quality, but not enough of it. Second (Wells) also a good pair, the cock especially being nice in face and lobe, though a trifle rough. Third Nash, fourth Morton.

LEGHORNS (seventeen) a good class. First (Brown) a good all-round pair of Browns. Second (Verrey) Browns again, the cock very coarse in comb and poor in lobe. Third (Bradbury) smart Whites but for the cock's drooping comb. Fourth (Philcox) good Browns.

ANDALUSIANS.—A fair class of sixteen. First (Winner) well pencilled, but cock very large in comb. Second (Winner) moderate only in pencilling. Third (Bacon) a neat nicely pencilled pair. Fourth (Manchif) very dusky.

MINORCAS (thirteen).—First (Harwood) the cock very neat in comb and clear in lobe. Second (Dominy), the cock very heavy in comb. Third (Leat) and fourth (Parkhouse) both smart pairs.

HOUDANS (eight) were a good class. Mr. Howard's well-known pair were to the front again. Second Lane, third Jackson, fourth Hanson. *Any other French* (four).—First (Jackson) fair-sized Crèves, second (Darley) ditto, third withheld, fourth (Ridley) La Flèche.

HAMBURGS.—*Gold or Silver-pencilled* (fourteen).—First (Orriss) pretty Golds, second (Tickner) Golds again, as also were third (Castell) and fourth (Mowlem). In *Spangles* (nine), on the other hand, all four prizes went to fair Silvers, well placed. First Wingfield, second Ashwell, third and fourth Plattin. In *Blacks* (six) first (Bell) were glossy

and neat in head properties; second (Ebbs) good in comb and lobe; third Pointer.

ANY OTHER VARIETY (eighteen).—First (G. Burnell) were a good pair of Malays; second (Broad) good White-crested Polish; third (Ekins) Frizzles.

BANTAMS.—*Black or Brown Red Game* (thirteen).—First (Pilkin) neat Black Reds. Second (Leach) Black Reds again, in grand condition. Third (Morgan) stylish Black Reds. Fourth (Vigers) Brown Reds, rather large. *Pile or Duckwing Game* (eleven).—First-and-cup (Pilkin) a neat pair of Piles; second (Davenport) Duckwings; third (Waters) and fourth (Docksey) Piles again. *Any other variety* (seventeen).—First (Barnes) Black Rose-combs; second (Silvester) Silver-laced; third (Clarke) Cuckoos; fourth (Brett) White Rose-combs.

DUCKS.—*Aylesbury* (nine) contained nothing special. First Hedges, Second Sear, third Harris, fourth Lane. In *Pekins* Mr. Nickolls won first and cup with a fine pair; the drake, however, was crested or ridged on neck. Second (Keele), third (Nichols), and fourth (Winter) were all good specimens. *Any other variety.*—First (Howard) moderate Rouens, second (Woodgate) Black East Indian, third (Nicholls) Rouens again, fourth (Goodman) Muscovy.

PIGEONS had twenty classes and close upon three hundred entries. They opened with

POUTERS (six).—First (Baker) went to a Blue-pied, second (Byford) to a White, third (Theobald) and fourth (Sugden) to Dun-pied.

CARRIERS.—*Black or Dun* (seven).—First-and-cup (Baker), second (Cork), and third (Walker) were of the first-named colour, while fourth (Kempton) was a Dun. *Any other colour* (four).—First (Byford) and third (Baker) were Blues, second (Cox) a White, and fourth (Piper) a Dun pied. *Black or Dun of 1880* numbered no less than twenty-three; first-and-cup (Cox), third (Harvey), and fourth (Savage) being Blacks, and second (Hale) a Dun.

DRAGONS were described by the Judge as specially good classes. *Blue or Silver cocks* (nineteen).—First (Calcutt), third (Smith), and fourth (Close) were Blues, second (Smith) a Silver. *Hens* (eleven).—First (Close), second (Norris), and fourth (Calcutt) were Blues, and third (Winner) a Silver. *Any other coloured cocks* (fourteen).—First-and-cup (Howard) a Blue Chequer, second and third (Leith) a Yellow and a Red, and fourth (Patterson) a Yellow. *Hens.*—First (Leith) and fourth (Pratt) Yellows, second (Close) a Blue Chequer, and third (Howard) a White. *Any colour of 1880* (twenty-four).—First (Lush) third (Patterson), and fourth (Dean) were Blues, and second (Leith) a Red.

TUMBLERS (five).—First (Baker), third and fourth (Rayner) were Almonds, second (Langridge) a Red Agate.

JACOBINS (six).—First (Stanfield), third (Baker), and fourth (Ward) were Reds, second (Stanfield) a Yellow.

OWLS (fourteen).—First-and-cup (Baker) a White African, second and third (Van Senden) a Blue and a Silver, fourth (Stanfield) a Blue.

TURBITS (twelve).—First (Baker) a Red, second (Holmes) a Blue, third (White) a Yellow, and fourth (Cork) a Black.

FANTAILS were only four, and all Whites. First Baker; second and third Bakewell; fourth Hale.

ANTWERPS, Short-faced cocks (nine).—First-and-cup (Turner) and second (Albury) Red Chequers, third and fourth (Theobald) a Silver and a Blue. *Short-faced hens* (eleven).—First (Jefferies), second (Albury), third (Buckland), and fourth (Wearing) were all Red Chequers. *Homing cocks* numbered no less than forty-nine. First-and-cup (Jenkinson) a Blue Chequer, second (Herrieff) a Silver Dun, third (Browne) a Blue Chequer, and fourth (Leake) a Red Chequer. *Hens* (forty).—We did not note the colours of the winners, but have an impression that they were mostly Red Chequers. First Browne, second Winner, third Sayers, and fourth Key.

ANY OTHER VARIETY (eight).—First and second Baker, third Allen, and fourth Lamb.

THE BIRMINGHAM SHOW.

IN our report of this Show last week we omitted one or two matters which may be of interest to our readers. The first was the protest against Mr. Norris's Dark Brahma pullet as being an old hen (lodged by Mr. Percival's poultryman); the omission was intentional upon our part, as we had not received any intimation of the decision of the Council before going to press. We have since learned that the Council considered Mr. Norris's explanation perfectly satisfactory, and held that the decision of such a matter as that of the age of a bird rested entirely with the Judge. We see no reason to believe that Mr. Norris's pullet was over the specified age. The fact that she has been exhibited under no less than five judges, and in the first instance as early as September, seems a conclusive answer to any objection on this score. We may mention that at the Show there was a great deal of discussion amongst certain individuals as to both the age of Mr. Norris's pullet and the tail of his third-prize cock in the Dark Brahma class. We think it extremely reprehensible in such cases to call the honesty of an exhibitor into question without good evidence, and if there be good evidence the hostile comments should in every case be followed by a protest. If there be not evidence those doubting the honesty of the exhibitor should, in our view, keep their opinions to themselves, and not blazon them abroad through a show to the detriment of the person directly interested, and to the degradation of the fancy generally.

Another matter upon which we should have wished to say a few words was a new incubator brought forward by Mr. Tomlinson. In

the pressure upon our time caused by the necessity of our going so early to press we had merely time to take a casual glance at this incubator. We hope before very long, however, to have an opportunity of examining it in detail, and giving our readers the particulars.

In the class for Buff Cochins the first prize and cup was won by Mr. Procter, and not by Mr. Tomlinson, as inadvertently published in our report.

In our last issue we perhaps hardly sufficiently acknowledged the general excellence of the management and the great improvement in many points effected this year both in regard to penning, arrangement of pens, and feeding. Everything was thoroughly well done, and we congratulate the management upon their success.

Our comments upon the various classes will have sufficiently indicated to our readers our general views as to the judging; but in one case—that of Mr. Leno—we desire to say an extra word of recognition. He is comparatively a new hand at the Brahmas—sufficiently tough subjects for adjudication—and his awards in the classes upon which he adjudicated were, as far as we could learn, accepted with entire approbation. That it should have been so speaks well for the manner in which he discharged his difficult duty.

VARIETIES.

THE ROYAL AGRICULTURAL SOCIETY.—At the last meeting of the Council the Hon. W. Egerton, as Chairman of the Veterinary Committee, brought up a report in which it was stated that foot-and-mouth disease was still on the increase. They had reason to believe that the disease has been introduced by French cattle into Deptford Market, and they recommended that the Privy Council be urged to take additional precautions to prevent the spread of contagious diseases from that market. Mr. Chas. Whitehead, on behalf of the Seeds Committee, reported in favour of withholding the prizes offered for new varieties of Wheat, as the competitors had not satisfactorily proved that the Wheats entered by them were distinctly new varieties. On the motion of Mr. Dent it was decided to set aside a sum of £500 for educational work during the ensuing year; and on the motion of the Hon. W. Egerton the Council made a grant of £250 to be expended in veterinary investigations. Various standing Committees were appointed, and some business in reference to next year's Show at Derby was transacted. Mr. Jacob Wilson was re-elected Steward of general arrangements at the Society's Shows for a term of three years.

— PRESERVED AUSTRALIAN RABBITS.—The Australian Meat Preserving Companies, which have during the last year or two taken to cooking and "preserving" rabbits which have been killed in such enormous numbers, have found their resources unequal to the task of boiling and tinning in a fresh state all the rabbits which have been offered to them. The Colac Preserving Company, for instance, whose works are situated about ninety miles from Melbourne, had on an average 7000 of these rodents brought in every night for the first four nights of the past season's operations. How the supply would have increased as the season advanced it is impossible to say, but orders were given to limit the daily quantity to 2700 pairs. This number cooked and "canned" for five days a week and during a season of twenty-five weeks gave 675,000 rabbits as the return for one establishment—a quantity which is 50 per cent. more than was dealt with in the season of 1879.

— THE MILK TRADE.—At the sixth anniversary dinner of the Metropolitan Dairymen's Benevolent Association, which was founded in 1874 for the relief of aged and infirm members of the trade and their widows, and which is supported by voluntary contributions, the Chairman said that there were no less than four million cows kept in this country, and the value of that stock was worth seventy millions of money. In addition to that, dairy produce was yearly imported to the value of fourteen millions of money. The trade was growing and increasing in importance, and the yearly growth of the population in this country required an annual increase of sixty thousand cows to meet the wants of dairy produce. He incidentally referred to the foreign importation of milk, and said the Privy Council should prohibit the bringing into this country of that commodity from places where the foot-and-mouth disease was known to exist, as there was danger of its breaking out here.

— AGRICULTURE IN IRELAND.—The Royal Agricultural Society finds some difficulty in getting a place for its Show of 1881. Mullingar has been spoken of, and a member of the Local Committee

attended the monthly meeting of the Council in Dublin, and stated that the subscriptions promised amounted only to £840. The opinion was expressed that less than £2000 would be insufficient. It was stated that under ordinary circumstances there would have been no difficulty in getting the requisite amount subscribed. The Chairman said if the Show was not held in Mullingar there would be no Show at all next year. It was ultimately resolved to postpone the decision for two months, to give time for getting further subscriptions. The Show is usually fixed four months before this period of the year. Mr. Rochefort Boyd, D.L., stated that the rents in the centre of Ireland were being remarkably well paid, and that the landlords of that part of the country had no excuse for not coming forward and subscribing towards the expense of holding the Society's show next year at Mullingar.

— PROPOSED BRISTOL CHANNEL OBSERVATORY.—Mr. E. J. Lowe, F.R.S., who for the last forty years has carried on a regular series of meteorological observations at Highfield, near Nottingham, has recently purchased the Shirenewton estate, near Chcpstow; and, being convinced of the real importance of establishing an observatory which may be carried on through future years without interruption, has generously offered to present the whole of his valuable collection of meteorological instruments, together with his books and papers, towards the establishment of such a permanent observatory, for which he also offers to give the site, together with such stone and lime as may be required for the erection of the necessary buildings, provided a sufficient sum can be raised in the district to build the same, and to provide a small endowment towards the maintenance of a limited staff of assistants, who would in the first instance be under his gratuitous guidance and supervision. Mr. Lowe, if his offer is accepted, proposes to vest the property in the following trustees:—The Duke of Beaufort, the Marquis of Bute, the Duke of Somerset, the Earl of Cork and Orrery, the Earl of Cawdor, the Earl of Ducie, Lord Kensington, M.P.; Lord Tredegar; C. R. M. Talbot, Esq., M.P.; Sir W. V. Guise, Bart.; Sir John Lubbock, Bart., M.P.; Sir John Maclean; J. A. Rolls, Esq., M.P.; S. S. Marling, Esq., M.P.; Samuel Morley, Esq., M.P.; Christopher J. Thomas, Esq.; and W. R. Edwards, Esq.

— AMERICAN DAIRY CATTLE.—The Shorthorns are largely in excess of all other pure bloods in the United States; and although their influence is felt mainly in the improvement of beef cattle, many dairymen hold them in high favour. Mr. Harris Lewis, one of the best known dairymen of New York, writes:—"There is no way known to me by which our dairymen can so easily and certainly improve the milking qualities of our native herds as by using a thoroughbred Shorthorn bull, and raising the heifer calves of the best milkers. The bull should be from a good milking family of Shorthorns. I commenced this practice several years ago, and the result has been so favourable to the Durhams that I am now running into the thoroughbreds for my dairy. The first cross of the native cow with a Shorthorn bull usually produces better results than subsequent crosses, but this rule may not hold good if the bulls used for the second or third crosses are of superior milking stock to the one first used. I find that our Herkimer County dairymen, with all their prejudices against Durhams as milkers, will first select from droves of cows brought in for sale the Shorthorn grades, and pay better prices for them than for superior natives."—(From "*Dairy Farming*," by Professor Sheldon, for December.)

HINTS FOR THE SAFE WINTERING OF BEES.

REPETITION of oft-given instructions needs no apology in the particular case of bee-keeping, because from the peculiarity of their management the wants of bees are very apt to be overlooked. It is only for three or four months in the year that the cares of the apiary are engrossing. Active interest from day to day in the progress of each hive lasts only from May to August inclusive in most apiaries in the kingdom. The rest of the year is, in comparison, a dull and dreary time with little to interest the bee-keeper; therefore he is apt to forget his bees and so to neglect them—not intentionally, but other matters press upon his attention, till he finds, too often to his chagrin and loss, that mischief has been going on among his hives past remedy.

Let me, therefore, summarise what it will be important to attend to ere it be too late. 1, As to food. This is obviously of the first necessity, to see that every hive has enough and to spare. We have had some very warm days this autumn, and even a continuance of them. Breeding, therefore, has been in unusually active operation, and consequently much stored honey has already been consumed. Where there is the slightest suspicion of a possible lack of food it must be supplied forthwith. Choose the warmest days which may be given us, and top feed in small quantities, when the sun is out and the air calm. Remove the feeders and cover up the holes some time before sunset. In extreme cases it is a good plan to close the entrances and to bring the hives into the house at night, when they may be fed for some hours by the fireside in the warm kitchen; also, barleysugar may be given them both at top and bottom where it is not convenient to feed in any other way. If syrup is the food supplied it should now be somewhat thick and fortified with a little gin or other spirit. The sooner this is done the better; but beware of feeding when the temperature is low or the wind high if the bees have access to the open air.

2, Protection is the next important matter to be attended to. Already we have had the before-cast shadows of coming events in the snows and severe frosts which have visited us this year so much earlier than usual. Therefore let all bee-keepers look well to their hives, and see that no damp from snow or rain can lurk or linger about them.

3, Hive entrances should be narrowed and guarded carefully against intrusion of mice or other vermin. If possible during the coldest weather, when snow lies deep or high winds prevail, and even in the treacherous weather of advancing spring, it will be often advisable to close the entrances altogether. Perforated zinc blocks will be found useful for this purpose, such as can easily be removed and replaced. Remove them on all soft sunny days, replacing them when the evening comes, and by their means keeping the bees confined in all uncertain or rough and stormy weather. By this means many a valuable life will be saved. Bees can be kept thus at home for several days together without much, if any, serious inconvenience to themselves. This treatment can be prolonged quite to the middle of April in the case of all but the most forward stock. But when once the population begins to extend itself so as to cover three parts of the combs it will no longer be prudent to confine the bees; nor should this ever be done without seeing to the due ventilation of the stock by the application of bits of perforated zinc at the entrance and over the hole or holes at the top of the hive.

4, Pedestals should be examined, and new and strong supports given wherever there is the least suspicion of decay, otherwise some stormy day the hives will be found overturned and ruined by some sudden gust of wind.

5, Now is the time also for making all preparations for the future season. New hives should be made, and old and worn-out hives destroyed, especially if there is any suspicion of lurking disease, or if the wax moth has got hold of any.

6, If any hives require to be removed in winter, perhaps the best time is just after a long frost. But even then it will not be safe to remove them to any position near their old stand. Nor should they be liberated after their removal till some morning warm and still. If a little syrup (a dessert-spoonful at a time) is poured into the hive at the time of their liberation it will cause an excitement about the hive entrance, which will attract home again any bees which might perhaps otherwise be lost. But I do not advise removing hives at any time of the year except to a considerable distance unless necessity requires it. It is better to wait till swarming time, when special facilities are afforded.—B. & W.

APIARIAN EXHIBITIONS.

I SHOULD like to see a limit to the number of sections and bottles at exhibitions in their classes, say to a dozen each. What chance has a poor cottager at a distance from the show with a rich neighbour? The expense of packing, carriage, &c., entirely excludes the poor man from competition.

Straw skeps should be more encouraged. The majority of cottagers are not yet sufficiently skilful to manage moveable comb hives successfully, but where that skill is forthcoming by all means use moveable combs, as undoubtedly that is the best system.

Transferring the combs from skeps to bar-frames should be either discontinued or done in a business-like manner. Some that were at the St. Albans Show had to be done again after coming out of the tent! What the Judges could think of it I know not, but if I had been judge I should certainly have dis-

qualified them. Transferring, in my mind, should be rendered complete ready for the bees to finish.—STINGER.

BEES IN NOTTINGHAMSHIRE.

IN 1879 I did not obtain an ounce of honey, but was £3 on the wrong side for sugar instead. I had five stocks this spring, one of which died. With swarms from the four, and four stocks I bought cheap in the summer, I raised the number to twelve. I broke ten skeps up, half of them large Pettigrews, took the honey, transferred brood and best combs to frame hives, united, and fed up for the winter. Out of the ten skeps I took 65 lbs. of honey. Paid for sugar £4 1s. Altogether I am about £6 out of pocket this season. I started three years ago, and have lost £16. The only consolation I have are my nine stocks, which, if next season is like the past has been, will cost me a trifle more. I have six frame hives with bees in, the others are skeps. I made the frame hives myself at a cost of about 2s. 6d. each. I can count thirty hives around me which have not 30 lbs. of food amongst them. Last winter killed nineteen out of every twenty colonies kept here on the old style. The coming winter will finish the rest if they are not fed, which many bee-keepers refuse to do, except by a handful of sugar on a plate.—NORTH NOTTS.

THE DALBEATTIE BAR-FRAME HIVE.

IN answer to Mr. M. H. Matthews in your issue of November 18th I annex a description of the hive with which I manipulate. After a number of years' improvements with the assistance of Mr. R. Wilson, who is a joiner and a bee-keeper, and the sole maker of the hive, we have found this to be the most efficient combined with cheapness and simplicity of any of the various bar-frame hives of our experience. The body of the hive is 24 inches long by 20 wide, and is double walled up to the level of the frames with a dead air space between. The upper part of the walls is single and hinged, so as to fall down to the level of the frames, which gives easy access to the apiarist when manipulating with the hive, and is of great convenience when closed for receiving hay or chaff cushions in winter. The hinged doors at the ends are constructed to fall down without having to remove the roof, so that easy inspection of the hive can be made. The floor board is moveable, is wedged up in front, and projects 2½ inches along the whole front to form a convenient alighting board. A swarming box with dividing boards is made to take the place of the floor board when inserting a new swarm. The hive has two entrance holes with regulating slides. The holes are 4 inches long, one for brood chamber and the other for supering. The latter is covered with queen-proof zinc, and the whole protected by an ornamental porch, which gives a neat appearance to the hive. The roof is of neat design, 8 inches high at the centre, and along with folding side walls allows 12 inches supering room. The inside of the hive contains thirteen self-adjusting bar-frames 14½ inches by 9 inches, with top bars 17 inches long, resting on zinc edging to prevent the bees from propolising, and so allow the operator to slide or remove the frames with the greatest ease. It has two moveable glass ends and one zinc queen-excluder, which, placed at the centre of the hive, confines the queen to a restricted brood chamber. The openings between the top bars are covered with notched reversible slips, which are useful in top supering.

When placing the hive in winter form we restrict the bees to a certain number of frames according to the strength of the stock, and substitute wooden dummies for glass ends, filling up the vacant space with meadow hay, which keeps them at an equal temperature and allows thorough ventilation.—JOHN THOMSON, 102, High Street, Dalbeattie.

P.S.—A frame containing six one-pound sections is sent out with every hive, which can be inserted instead of ordinary frames.

BEES ON THE MOORS.

HEATHER is known to be rich pasture for bees at a late season, and wherever it is within easy distance of advanced bee-keepers seeking profit their bees are taken to it in August. I am sorry I cannot tell your Leicester correspondent, "C. F." (page 452) how far he is from good fields of Heather. We are twenty-five miles from good Heather, and our bees are, generally speaking, taken to it. "C. F.'s" idea of spending his holidays with his bees among the Heather is a good one. One of our Sale grocers annually spends his holidays at a fashionable watering place. I met him on his return home about two months ago, full of satisfaction and bright with health, and he said he had £9 more money in his pocket than he had when he went. On being asked how he managed this, he said he bred a lot of pug dogs and took them

with him and sold them. If your correspondent could take eight or ten large strong hives on the moors he would return a richer man, and consider that his holiday there was as pleasant as it was profitable.

The gains on the Scotch moors this year were unusually large. The weather was remarkably fine, the hives were well stored with workers, and the combs were not very well filled with honey. Probably the brood of the hives was well advanced and did not require nursing. Under such circumstances large strong stocks have been known to gather from 7 to 10 lbs. each per day, on both Clover and Heather; but 20 lbs. per week per hive is considered good and satisfactory work. It should be remembered that the weight gained by a hive is not a fair measure of the work done by the bees. Their own keep should be taken into consideration. When the Heather blossoms fail, or when weather prevents the bees from working, strong stocks lose in weight more than a pound a day. When honey is being gathered very fast the work inside the hives often gets into arrears, and this accumulation of work occupies the bees some days after the glut of honey has past. Hence the great consumption of honey for awhile after a great gathering.

The honey season of 1880 in Scotland does not fairly settle the question of the superiority of the swarming system of management over the non-swarming. The season until August was a comparative failure. The swarms gathered honey enough to fill their hives with comb and brood, and probably hives that never swarmed at all had no more workers in them at the harvest season than mother hives and their swarms. If the glut of honey had come a month or six weeks sooner and the Heather had been a failure the non-swarming system would have appeared to advantage.—A. PETTIGREW.

OUR LETTER BOX.

Address (Mrs. Horsley).—The address you require is Mr. Edwin Crook, 5, Carnaby Street, Regent Street, London.

Chickens Dying (E. C. G.).—Your birds require more nourishing and more easily digestible food. Very early in the morning give them warm soft food—barley or oatmeal, or pollard mixed with pot liquor or milk, and if a few kitchen scraps are added all the better. The whole should be mixed together, only sufficient liquid being added to form a rather dry crumbling paste. As much of this food should be given to them as they will eat readily. Give kitchen scraps and a little corn at mid-day, and a good feed of sound, not inferior, whole grain at night. Green food should also be supplied to them daily. There is little or no nutriment in the "tail" Barley you are giving to them, and hence they are starving with their crops full. Spratt's food given occasionally would also be beneficial.

Feeding Fowls (Old Subscriber).—Poultry may be fed with horse Beans cracked, but we should prefer to give bean or maize meal mixed with minced vegetables, either Carrots or Cabbage.

Crooked Combs (A Beginner).—We advise you to leave your combs as they are till April, then carefully cut away all the excrescences and irregularities you speak of from such combs as are not occupied with brood. Supply some bar-frames with straight comb between every doctored comb. If your hives swarm you can examine the combs again, and remove or re-arrange them till all are regular. The "solid mass" should be entirely removed as early as possible. The deeper cells will be reduced to their proper size by the bees themselves when they are wanted for brood. You need not meddle with them at all. Your arrangements for ventilation are quite sufficient, but as the weather gets warmer remove some of the pieces of earpet.

Feeding Bees During Winter (A Novice).—Stocks should by the middle of October be provided with food sufficient to carry them through, with a margin, to the early part of March, and during the intervening period all disturbance should be absolutely avoided except where some error in management has rendered it imperatively necessary.

Wintering Transferred Bees (Idem).—Stocks transferred last autumn should be confined by a division board to just so much of their hive as they are able to fill, as hives half empty of comb if left open to the full extent are much against the bees during winter. The great loss of heat this causes involves an increased consumption of stores and reduces the vitality of the whole, even, it may be, fatally. Protect the bees above by a quilt, over which place a bottomless and lidless box 3 or 4 inches deep and the size of the part of the hive to which the bees are confined. Fill this box with chaff, when you may assure yourself of its advantage by passing your hand through the latter on to the quilt, which you will find even during the coldest weather to be really warm. It is a matter of choice whether you transfer next spring before or after swarming. We should transfer early, say the beginning of April, because the bees can be more easily helped in the frame hive than the skep.

How to Divide a Stock in a Frame Hive (Idem).—You could increase your stocks "by taking a sheet of brood and a few bees with it and placing it in another hive, afterwards adding to it a bought queen;" but the plan would be very unphilosophical, as our explanation will show. If you so add the queen the stranger will be given to a mass of old bees, which are only persuaded with great difficulty to receive an alien mother, and in addition, should they start comb-building while they are unwilling to adopt the queen offered them in a cage, the comb made will be of drone size. We recommend you to proceed thus:—Find, on a fine day when the bees are in full flight, the queen in your frame hive, and lift out the comb of brood with the adherent bees and queen and place it in a new hive, which must now be stood upon the old stand, while the old hive must go, of course, to some new station. The bees in flight—i.e., the older bees—will return to their known position, and will thus make a swarm, and will commence to build worker comb to accommodate the eggs the mother is ready to lay. Now add to the old hive the bought queen in a cage. The youngsters not yet old enough to fly will quickly accept her, and brood hatching out will quickly put the stock into condition. The frames must be drawn

together to fill up the space from which the comb was removed; but as soon as the queen is really accepted and the hive appears strong a sheet of foundation may be placed here, and this will be quickly converted into comb. Similarly a sheet of foundation on each side of comb with the made swarm will be of great help. A caution here is necessary. No more certain precursor of loss and disappointment can exist than an over-anxiety to increase stocks in number. Never attempt dividing colonies until they are so strong as to show that swarming is not likely to be long delayed.

Nubian Goats (Old Subscriber).—We are not aware at what price some of the best bred Nubian hornless Goats can be obtained. They will commence breeding and giving milk at from eighteen months to two years old, and they have been known to continue in milk for two years without breeding again, Mr. Dickens' stock especially; his address is 5, Hornsey Street, Holloway Road, London. We are not able to recommend any breeder in particular, but in giving the names of the prizewinners in the class for hornless goats animals may no doubt be obtained from some of these exhibitors, and the stock no doubt be Nubian or having a cross of Nubian blood in them. An application to either of the prizewinners will no doubt be quite sufficient to obtain good animals at a fair price, and every information which may be required concerning their capabilities for milking.—Metropolitan Dairy Show, October, 1880, Class 27, female Goats, long or short-haired, without horns, over two years old. First prize, Mr. J. Arnold, Union Lodge, Liverpool Road, N.; second and very highly commended, Mr. W. Chapman, 7, Compton Place, Canonbury; third, Mr. J. Weston, 49, Arthur Street, King's Road, Chelsea. Commended, Mr. J. H. Bayley, 29½, Great Sutton Street, Clerkenwell. Highly commended, Baroness Burdett-Coutts.

Dairy Management and Food for Cows (R. H. H.).—In reply to your questions, "What is the best book or guide for the management of a dairy? the best food for the cows? to give the largest quantity of milk, &c.?" we can only refer you to the information given in this Journal on the 11th, 18th, and 25th of April, 1878, under the heading, "Management of a Butter-making Dairy." The notes were contributed as the result of a lifetime of experience, giving at the same time all the latest improvements in the management of dairy cattle, &c.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51°32'40" N.; Long. 0°8'0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1880. Nov. Dec.		Barometer at 23° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
			Inches.	deg.			deg.	deg.	deg.	deg.	deg.		In.
Sun.	28	30.389	47.8	45.9	S.W.	42.8	52.3	39.7	76.4	31.4	—	
Mon.	29	30.428	45.4	44.6	S.	43.0	51.0	42.4	57.3	34.8	—	
Tues.	30	30.443	42.6	41.5	S.E.	42.8	47.4	39.3	66.4	31.4	—	
Wed.	1	30.176	46.7	45.7	S.	42.9	49.6	41.4	60.5	38.3	0.030	
Thurs.		30.243	38.6	38.4	N.W.	43.4	49.4	36.9	67.7	28.9	—	
Friday	3	30.325	41.6	40.7	N.E.	41.9	49.5	32.4	47.4	28.8	—	
Satur.	4	30.439	46.7	45.1	N.	42.6	51.2	41.0	54.8	38.7	—	
Means.		30.349	44.3	43.1		42.8	50.0	38.9	61.5	33.1	0.030	

REMARKS.

28th.—Fair with sunshine, calm and mild; starlight evening.
29th.—Fair, damp, and mild; windy in forenoon.
30th.—Morning fine with sunshine; afternoon misty and damp.
1st.—Fair and calm, rain at 9 P.M.
2nd.—Sunshine in forenoon; very damp afternoon; thick fog in evening.
3rd.—Foggy morning, generally cloudy and damp.
4th.—Fair, damp, and mild.
Barometer high, and temperature also considerably above the average.—G. J. SYMONS.

COVENT GARDEN MARKET.—DECEMBER 8.

THERE is very little to quote about supply and demand just now, our market remaining very stationary. Large arrivals of American Apples are still to hand, as also St. Michael Pines. A small consignment of Pears from California has reached us this week.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples.....	½	sieve	2	6 to 4 6	Melons	each	0	0 to 0 0	
Apricots.....	box	0	0	0 0	Neectarines....	dozen	0	0	0 0
Cherries.....	½ lb.	0	0	0 0	Oranges	½ 100	0	0	0 0
Chestnuts.....	bushel	12	0	16 0	Peaches	dozen	0	0	0 0
Figs.....	dozen	0	0	0 0	Pears, kitchen ..	dozen	2	0	3 0
Filberts.....	½ lb.	0	0	0 0	dessert.....	dozen	2	0	4 0
Cobs	½ lb.	2	0	0 0	Pine Apples	½ lb.	1	0	2 6
Gooseberries ..	½ sieve	0	0	0 0	Plums	½ sieve	0	0	0 6
Grapes	½ lb.	2	0	5 0	Walnuts	bushel	0	0	0 0
Lemons.....	½ 100	12	0	18 0	ditto	½ 100	0	0	0 0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Artichokes.....	dozen	2	0 to 4 0		Mushrooms	dozen	1	0 to 1 6	
Asparagus.....	bundle	0	0	0 0	Mustard & Cress ..	punnet	0	2	0 3
Beans, Kidney....	½ lb.	0	0	0 0	Onions.....	bushel	3	6	5 9
Beet, Red.....	dozen	1	0	2 0	pickling	quart	0	0	0 0
Broccoli	bundle	0	9	1 6	Parsley..... doz.	bunches	6	0	0 0
Brussels Sprouts..	½ sieve	1	9	2 0	Parsnips	dozen	1	0	2 0
Cabbage	dozen	0	6	1 0	Peas	quart	0	0	0 0
Carrots.....	bunch	0	4	0 6	Potatoes.....	bushel	3	9	4 0
Capsicums.....	½ 100	1	6	2 0	Kidney.....	bushel	4	0	4 6
Calliflowers.....	dozen	0	0	3 6	Radishes.... doz.	bunches	1	6	2 0
Celery	bundle	1	6	2 0	Rhubarb.....	bundle	0	4	0 0
Coleworts.... doz.	bunches	2	0	4 0	Salsafy.....	bundle	1	0	0 0
Cucumbers.....	each	0	4	0 6	Scorzonera	bundle	1	6	0 0
Endive	dozen	1	0	2 0	Seakale	basket	3	0	3 6
Fennel.....	bunch	0	3	0 0	Shallots	½ lb.	0	3	0 0
Garlic	½ lb.	0	6	0 0	Spinach	bushel	3	0	0 0
Herbs	bunch	0	2	0 0	Turnips	bunch	0	4	0 0
Leeks.....	bunch	0	3	0 4	Vegetable Marrows	each	0	2	0 0



16th	TH	Linnean Society at 8 P.M.
17th	F	
18th	S	
19th	SUN	4TH SUNDAY IN ADVENT.
20th	M	Sale of Orchids at Mr. Stevens's Rooms.
21st	TU	
22nd	W	

HOW TO GROW ASPARAGUS.

HERE can be no doubt of the importance and value of Asparagus as a vegetable, but in some soils there is, perhaps, no crop more difficult to establish satisfactorily. In some places it succeeds remarkably well, grows vigorously, and lasts in good condition for many years. As a rule it thrives in gardens situated near the sea-coast if the soil is light and sandy; but when of a tenacious character it is totally unfit for the production of good Asparagus, and to attempt its growth is almost useless without special preparation. To accomplish this will cause much labour in clearing out the soil where it is intended to have the beds, for adding abundance of manure to such heavy soil is one of the greatest mistakes that can be made.

The ground where Asparagus is to be grown should always be well drained: if drainage is deficient the roots soon perish and die during winter, but if well drained it is unnecessary to place under the beds clinkers or broken bricks. Before taking out the soil where it is proposed to plant the Asparagus a good fire should be started, if convenient, to burn a portion of the soil as it is taken out, which can again be worked in with advantage amongst the compost intended to be used. Nothing better will be found for this purpose than old potting soil, and it matters but little if quantities of crocks remain amongst the soil. Prunings and material from the rubbish heap should also be burned and mixed with a good quantity of partially decayed leaves; this with a moderate amount of manure will be suitable for the beds. A few loads of coarse river or sea sand can be advantageously employed according to the lightness of the soil. Road sweepings are excellent for this purpose, as they frequently contain coarse sand or small gravel, leaves, horse droppings, and other manures. The materials should be well mixed together and wheeled into the beds; a heavy dressing of hot lime should then be given, and the whole mass well trenched so as to thoroughly incorporate the natural soil remaining underneath with the lime and other mixture. This can be prepared any time during the winter so as to be ready in the spring.

The best time for planting, according to my experience, is when the plants are commencing growth. Purchased plants I do not like, and I would prefer sowing seed in April. The reason I object to purchased plants, especially if they come from a distance, is because they are dried too much in transit. A number of beds can be prepared and the seed sown, from which plants can be obtained the following spring for other beds, or the seedlings can be thinned out to the necessary

distance. When growth has commenced lift the plants in small bunches without shaking off the soil. I do not see the advantage of splitting them up and planting single crowns. A line should be drawn and a trench made so that the roots can be spread out and then covered at once, placing about an inch depth of soil above the crowns, and when the planting is completed slightly cover the bed with short dung and decayed leaves. If planted deeply at first the crowns soon, by constant top-dressings, become too deep. The Asparagus here has been hitherto planted in beds, but I do not recommend the system. I cannot see any advantage in having it in beds, as much labour is caused in keeping them neat. When in beds, if the plants grow luxuriantly they not unfrequently become too crowded and have not room to thoroughly develop. If planted in rows 18 inches apart and 1 foot or 14 inches from plant to plant, ample space is allowed to work any short manure in with a fork in spring. After the foliage has died and been cleared off, the beds should be well covered with fresh manure. Care must be taken that this operation is done before frosty weather sets in; for although Asparagus is hardy when established, I believe many young plants are killed in winter by frost, especially if the ground be wet.

While growing liberal applications of liquid manure, especially during dry weather in summer, are very beneficial. Guano acts quickly if strewn over the beds during showery weather. Asparagus is benefited by slight applications of salt; and if seaweed can be obtained it may be laid over the beds in autumn instead of the manure: no salt is then required. It is often very difficult to obtain seaweed when situated some distance inland; however, salt can be used, but it should be employed carefully, or it will do more harm than good. Salt can be applied in spring as growth commences, which is doubtless the best time. When it is used in quantity during the autumn and winter it tends to keep the soil too wet.

To many readers of the *Journal* the practice indicated may appear to entail a good deal of labour, and especially to those who have suitable soil in which Asparagus will do well with scarcely any preparation, as I have seen in previous years. In those days I should have thought it needless to be at the trouble I have detailed in growing this crop; but in the garden here I found five beds from which I could not cut one dish. The particulars given have been carried out except wheeling out the soil where the Asparagus is planted. The ground was low to start with, and without wheeling any away I had to add abundance of the fresh compost to make it level with the other portion of the garden. There can be no doubt that burnt soil and rubbish is admirably adapted for mixing with soil for Asparagus beds. I had collected all summer and autumn grass from the lawns, prunings, edgings from the sides of walks, rough leaves, and small branches from amongst the shrubberies—in fact, all kinds of rubbish that would burn; and by the end of the season I had a valuable heap of ashes and old soil, as well as abundance of old leaf soil and sweepings from the lawns. I have now full and good beds of Asparagus. When old potting soil and garden rubbish prove to be of value for growing this as well as other kitchen garden crops, as recorded by Messrs. Record and Iggulden, who would grudge the time and labour required in saving and preparing it if such advantages are to be gained?—WM. BARDNEY.

ON page 503 Mr. Nunns gives his experience with Asparagus,

which, to say the least, has been most discouraging and unfortunate. As he remarks at the commencement of his commendable confession of failure, "Asparagus is one of the most important vegetables grown in the kitchen garden;" and therefore the comments by different growers, if they do not exactly afford the true cause of Mr. Nunns' failure, may yet prove instructive to many readers of this Journal. It seems to me that your correspondent, although he appears to have gone earnestly to work, has really killed his plants with kindness. A perusal of his notes gives the impression that he has employed by far too much manure for almost any soil, and especially a "stiff retentive loam." What may prove quite proper for a sandy loam or light soil, with, say, a gravelly subsoil, which is naturally drained quickly, may be altogether unsuited for a heavy retentive soil, the subsoil of which is generally somewhat in keeping with that on the surface. According to your correspondent's showing the piece of ground selected "was rather wet," and the probability is that the garden is imperfectly drained. Unfortunately he is not so explicit on this point as in others. Drained no doubt the garden is, but at what depth? and how far apart are the drains? From the fact of the surface being rather wet I should surmise that the drains are too deep to act properly, as there is no doubt that unbroken shale is almost impervious to water. In a plantation here, for instance, I found some deep drains quite useless, nothing short of shallow open drains being of avail. The subsoil I found comparatively dry when taking out a large Conifer, whereas the surface soil had to be washed off the spades repeatedly. The hole made by taking out the tree was enlarged, surface drains were cut to it, and it has ever since been nearly full of water. This, of course, is an exceptional case, but I quote it to demonstrate the necessity of having shallow drains in some soils. In the same garden in which Asparagus failed, most vegetables, Strawberries, Peaches and Nectarines, Apples and Pears, all succeed well. But the question is, Was the ground trenched for them with great quantities of manure worked in to a good depth, causing the roots to extend so far downwards as to be destroyed owing to excessive moisture? which I consider the true cause of the Asparagus failure.

Had I the management of such a garden not much of the shale would find its way to the surface, at all events till its character had been much changed. Instead of the drains being, as usual, $1\frac{1}{2}$ rod apart and from 3 to 4 feet in depth, they should be only 1 rod apart and 2 feet in depth. The drainage pipes should be covered with broken bricks, clinkers, or other rough lasting material 6 inches in depth, and the shale be broken up to the level of this, working in as much refuse as is obtainable, and other undecayed material. The top spit of stiff retentive loam I should endeavour to improve by digging it up very roughly in the autumn, occasionally employing a dressing of quicklime, and as much leaf soil and spent tan, cocoa-nut fibre refuse, ashes, decayed garden refuse, road trimmings, and anything suitable that could be obtained, the aim being to provide a sufficiency of good workable soil without trenching deeply.

To break up and work many kinds of soil, under the impression that the land is better drained thereby, is a great mistake, as in reality the more it is broken up the more sodden it becomes, and in which state it will remain for a long time. Rather than plant or sow on a great depth of saturated soil, I would much prefer having ground freshly dug one spit in depth. Here, for instance, we seldom dig for many early crops till a few hours prior to planting or sowing, as the ease may be, taking care as much as possible to select a dry time for the operation, even if we wait a few days over the regulation time. Once our soil becomes saturated, the greatest difficulty is experienced in having it dry to a sufficient depth, especially during the spring months. No after labour will compensate for planting when the ground is unfit.

With regard to Asparagus the question is, Does it require such elaborate preparations as are usually made for it? I say, Certainly not. If instead of making deep rich beds—(which in Mr. Nunns' case, were cut out of a hard subsoil, thereby probably forming a water basin)—the Asparagus roots were planted on the surface of ordinarily roughly-dug well-pulverised soil, the results would be equally satisfactory. It would be advisable on a heavy soil to use a mixture of light, though not rich, soil above and below the roots in order to assist in their establishment. Not much manure would be required for at least two seasons, though it would be advisable to mulch with half-decayed manure at planting time, or before the sun has gained much power. The Asparagus, as all must admit, is really shallow-rooting, or as a writer in a contemporary put it, "the roots strike out horizontally rather than bore down perpendicularly." By planting on a somewhat poor soil and given annual top-dressing of manure the roots will be retained near the surface, and be more vigorous and healthy

accordingly. The time of failure with Mr. Nunns appears to be when the roots have worked down into the cold subsoil, and are there either injured by excessive moisture or by some injurious constituent of the soil. In the former case the crowns would be badly matured, and therefore more susceptible of injury from frost or long-continued dampness, than are those plants with the majority of the roots nearer the surface. What strengthens me in the opinion of this being the right solution of the cause of failure, is the fact of much Asparagus being killed during the last severe winter which followed a wet and cold summer.

My advice, therefore, to Mr. Nunns and others is to adopt the more simple style of preparing and planting I have briefly detailed, and which is much the same as far as the act of planting is concerned as that adopted by the French. Probably they were the first to follow this practice; but it is quite certain that shallow planting has long been successfully practised. Larger the French undoubtedly grow it; but I question, if all accounts are true, if they have more profitable plantations than are those of my friends who have single lines of plants between long rows of Gooseberry bushes. In the first instance two-year-old plants were simply laid on the well-broken-up strip of soil, covered over lightly and mulched, and for years they have thrown up good quantities of saleable produce. The soil is a deep retentive loam, and all that now is done is to liberally mulch with good manure every autumn. What great strain upon the Asparagus plants is there that they require such elaborate and expensively made beds?—W. IGGULDEN.

DECEMBER FLOWERS.

To supply a large private establishment now-a-days during the shooting season with sufficient flowers is no light task, for it seems as if nothing can be done without flowers, and their popularity shows no sign of diminishing. Carpet beds and perennial borders may grow or decline in favour, bright colours and sombre foliage may each have their turn for summer decoration, but he who manages to have a large stock of flowers for all purposes during the dull winter months never need fear being out of fashion. A correspondent at page 504 has mentioned a few good plants which flower during the present month, but he by no means exhausts the list, and indeed he omits some of the best. I shall not attempt to exhaust the list either; for instead of this being the dull time of year which many people describe, I take it to be the very brightest period as regards indoor flowering plants with those who have the convenience to grow them. The plants I shall name are all of easy growth, and with one or two exceptions are generally well known. I will take the exceptions first, the most valuable of which is a semi-double Zonal Pelargonium, which appeared in the catalogues a few years ago, and, like many hundred more, has disappeared again because it had no special merit as an ordinary Pelargonium. Probably it was by chance that I found out its peculiar value, and possibly saved it from oblivion. I might, I daresay, have made a pecuniary gain by the discovery had I exhibited the plant in all its glory during the winter months under a new name; but that would have been scarcely honest, and I have already distributed it freely amongst my friends. Unfortunately it rejoices in a horribly ugly name which I cannot pronounce—Guillon Mangilli, and it bears flowers the colours of which I cannot satisfactorily describe, I must therefore send some to the Editors for description; but I can say that it is exceedingly bright with two or three shades of red, varying somewhat in winter according to the temperature in which it is grown. It flowers all through autumn, winter, and spring as freely as a Tom Thumb does in summer, and delights in a stove temperature, where it opens every pip and never damps or grows leggy. It needs no special cultivation beyond a warm house, from 55° by fire heat to 75° or 80° with sun heat and air, and a position where light is unobstructed. Plants six months old in 6-inch pots are now flowering equally freely with plants which have been flowering continuously for almost two years, and I can assure your readers that they will not be satisfied with such varieties as Wonderful and Vesta for winter flowering when they have once seen Guillon Mangilli as it flowers with me. My greatest want in this direction is the same habit in other colours, especially a white one, but Guillon Mangilli seeds only sparingly, and I am afraid we shall have to wait some time for this; however, I have a few seedlings from it for trial. A good double or semi-double white which would flower perpetually and bear stove treatment would be invaluable. I do not underrate single-flowered Pelargoniums, indeed I prefer them for summer flower beds, but they are of little use for cutting.

Another plant more generally known than the above, but not so much nor so well grown as it deserves to be, is the Celosia or Feathered Cockscomb. Imagine plants 18 inches or 2 feet high

in 7-inch pots clothed with plumes as graceful as *Humea elegans*, and of a bright gold or crimson colour. Seed has to be sown in May or June, and the young plants grown in a frame in a similar way to Balsams, then taken into heat in the autumn and treated about the same as Poinsettias, which will bring the plumes out to perfection. There has not been sufficient care taken yet in the selection of seed of this plant by the trade, or it would have advanced to a stage much nearer perfection. It is very variable, and I find that even one year's selection has made a great stride.

Yet another useful annual for winter flowering is the *Browallia*. *B. elata grandiflora* is probably as good as any of them. Its colour is bright blue; and although it has a leggy habit when grown naturally, it assumes a very neat and branching habit when treated in the way I recommend—viz., sow seeds in spring, and when sufficiently large to handle place three plants round a 7-inch pot, and let them grow up as tall as they will till about the beginning of September, by which time they will begin to flower and their stems will have become somewhat hard; then cut them down to about 9 inches from the pot, and they will break out abundantly and may be removed from the cold frame or even from outdoors to a minimum temperature of 55°, where they will grow and bloom profusely, producing flowers inferior only in name to the Forget-me-not.

Carnations, of which I have a house 56 feet by 16 full of flowering plants ten months old, are grown in the same way as described by me in this Journal some years ago, are quite indispensable, and are of such easy culture where there is convenience that it is difficult to imagine why they are not more generally grown; but somehow most people have an idea that there are great difficulties in their cultivation, and either do not attempt it at all, or they do so with plants which have been stunted, and as a natural consequence they fail. The flowers when cut will last a week in water, and we sometimes cut more than a hundred in one day during midwinter.

Gesnera refulgens is in full beauty now, its tall spikes of red Foxglove-like flowers mounted above its warm-looking brown velvet foliage makes it a particularly welcome plant for Christmas, when, for some reason which I cannot adequately describe, bright colours seem to be more enjoyable than at any other time. *G. zebrina splendens* with its green and brown leaves, and its reddish orange and yellow flowers, is now past its best, and *G. cinnabarina* with duller-coloured foliage and brighter flowers than either of the preceding, will not flower for another month, and will carry on a succession of *Gesneras* to the end of February.

Zygopetalum Mackayi, which is perhaps the easiest grown of Orchidaceous plants, is just ready to open its sweet-scented beautiful violet and white flowers in great abundance, which will last a long time either cut or on the plant, and *Epiphyllum truncatum* varieties are very gay, as they never fail to be at this time of year.

Among other flowering plants not mentioned by "FLORIST" at page 504 are *Mignonette*—Miles's Spiral is a good winter variety—Roman Hyacinths, which even those who have no love for the ordinary Hyacinth, and I am one, cannot fail to appreciate; Violets, of which Marie Louise is the most generally useful; *Richardia æthiopica*, or Lily of the Nile; *Bougainvillea glabra*, which will almost always admit of a small faggot of flowers and bracts being cut out without being missed; and a scarlet climbing *Tropæolum*.—WM. TAYLOR.

[The *Pelargonium* trusses are splendid. The flowers are semi-double; the prevailing colour of the upper petals is scarlet, brightening towards the base and shading to crimson at the edge; the lower petals are very rich pink, tinged with pale purplish magenta. The trusses with their stalks inserted through holes in a board, and firmly wedged with cotton wool and strong pegs, arrived as fresh as when cut, the board resting on supports 3 inches from the bottom of the box, which the trusses faced. The trusses packed in the ordinary manner on the false bottom, and filling the box, did not arrive in such good condition.—EDS.]

PRUNING YOUNG FRUIT TREES.

I HAVE recently planted some Apricots, Plums, and a Peach, which I purpose training fan shape. They are strong and healthy, and contain from five to nine shoots each. Should the shoots be nailed at their full length or shortened back? and if so, how much and when? They were planted a month ago. Some of the trees, especially the Peach, are almost perfect in form.—B. E. W.

[As this letter pertains to a subject of great and general importance we submitted it to a gardener who has had much experience with fruit trees, and his reply will be useful to others beside our correspondent. It is as follows—

Dwarf-trained wall trees should not be pruned and permanently

secured to the wall now, but the branches should be fixed in their places to prevent injury by the wind dashing them against the wall; but they must be attached loosely, so that the branches easily slide through the shreds as the soil and roots settle, for there is generally some settlement with newly planted trees. Pruning should be done in the spring, the branches being regularly disposed, and so thinly that the leaves of one branch do not overlap those of another. If the spurs and leaves of a fruit tree cover a space of 9 inches the branches of that tree should not be less than 10 inches asunder. That is a safe rule to follow.

In trees to be trained on the fan shape it is of great importance that the lower branches are strong, and when pruned they should be left of greater length than those above them, and their growth should always be encouraged to be in advance of the others. For this purpose the branches should be trained as much above the horizontal line as possible, and their ends at least should always curve and point upwards for the first few years. It must be remembered that the more nearly a branch is trained to the horizontal line the less freely it grows; and the nearer it approaches a vertical position the more luxuriant it becomes. If the lower branches of the young trees are weak we should not hesitate to remove them, and thus secure a strong base, which is the only sure foundation for producing a well-furnished and well-balanced tree that leaves no space at the base of the wall unoccupied. As you have plenty of branches you can well afford to remove those near the ground if they are much weaker than the others. Retaining weak basal branches and training them in the first instance horizontally, or nearly so, is a grave mistake, and the cause of unsightly trees and vacant space on the lower portion of a wall.

In pruning the trees, if the branches are not shortened sufficiently the buds at the base will remain dormant and the tree become bare in the centre. Every branch should be covered with foliage and fruit buds quite down to the stem of the tree. If the lower branches of the trees are 3 feet long a foot may be cut off them, always pruning to a healthy bud. Assuming that the lower pair, then, are each 2 feet in length, the next pair above them should be 3 inches shorter, a little less rather than more; the third pair from the ground being shortened in the same proportion, and the central leader, if there is one, shortened to about a foot. This leader will produce one pair, or perhaps two pairs, of young branches during the summer, besides the terminal growth. If there is not a central branch two shoots may be trained in summer from each of the branches nearest the centre for forming permanent branches, and so on until sufficient are secured for covering the wall. There is no difficulty whatever in furnishing the upper portion of a tree, and special attention should be given to the lower branches, always keeping them in advance of those above them. The base buds start more freely if the branches are not shortened until a decided sap movement is shown in the spring by the swelling of the buds. Indeed I have often found it advantageous to allow the terminal growths to attain a length of half an inch or more before shortening the branches. When the growths are weak, and, as they should be then, closely pruned, the knife may be employed sooner, or immediately the buds commence swelling.]

FLORISTS' FLOWERS.

AURICULAS.—If there be any time when the beginner in Auricula growing requires faith it is now. He has seen one by one the large fleshy leaves falling off and his plants reduced to very small proportions, but he need not be afraid if they are healthy and out of the way of drip and over-much moisture. They will need but little attention now, and require water but very seldom. The mild weather is so far favourable to the increase of green fly that it will be necessary to examine the plants from time to time and brush them away. For the same reason slugs and snails are troublesome, and should be trapped; they oftentimes nibble away at the crown of the plant unperceived. The unusual quantity of autumn blooming does not seem to promise well for a very good bloom next season.

CARNATIONS AND PICOTÉES.—Those in pots will require overhauling now and then to keep the pots clear of weeds and the plants of mildew or aphides. Where spot appears it is best to cut off the leaves on which it is. If green collects on the surface of the pots the soil should be stirred. Frames should be left open on all occasions when frost does not prevail, and care taken that rain does not reach the plants. When in beds they should be looked over occasionally, especially after frost, and if they have become loosened should be gently pressed into the ground.

PANSIES.—Dead leaves should be picked off and the surface of the pots stirred. They will now be showing signs of growing,

and those who grow them in pots will now be preparing the compost in which to repot them next month. There is no doubt that the Fancy varieties are meeting with much favour, and are now equalling in shape the Show varieties.

GLADIOLUSES.—It is only necessary now to look over the corms occasionally and to see that they are not damp. Now is the best time for procuring new varieties or adding to the stock. Mr. Kelway's list contains some tempting novelties, and the French growers have considerably reduced the prices of their roots, so that there is an ample field from whence to choose. If the ground has not been already prepared for next year's beds it should be done so at once. Good trenching is the best way to treat it, but in all soils this is not necessary, and where it is done care must be exercised as to the subsoil; if that is not good it should not be thrown up to the surface.

RANUNCULUSES.—Little is now required except to look over them occasionally to see that there is no damp amongst them; from which they are very liable to sustain injury, and I very nearly lost my collection by its being forgotten during my absence from home.

DAHLIAS.—Here again damp is the enemy to be guarded against, especially as the autumn was so wet for lifting the roots; but if kept in dry sand there is little danger, still they require looking over carefully now and then.—**FLORIST.**

THE EFFECTS OF ELECTRICITY ON VEGETATION.

It has been stated (page 355) that, on immersing a small seedling plant for a few seconds in dilute magenta dye it will become only partially stained; that the root will have imbibed the colour, whilst the stem and leaves will have rejected it, the coloured part forming an abrupt division across the junction of the one with the other at the neck or collar just above the surface of the soil. Now, whether the dye has only penetrated the part retaining the colour, or whether it has permeated the entire structure, but meeting with some bleaching agent in the stem and leaves has been deprived of its colour, these are immaterial points in regard to the present purpose; the object being to show that the contents of the stem and of the roots differ in their chemical composition, and that the change is effected at the collar adjoining the earth's surface. Take a fresh-stained plant, and after rinsing in clear water place it on a piece of glass, and having drained it add a drop of dilute sulphuric acid, when the colour will instantly disappear. In all bleaching agents, either by the dew and moisture upon grass, by the peroxide of hydrogen, the chlorides of lime and soda, or the sulphur acids, &c., oxygen is the acting principle. To demonstrate this oxygenated condition procure a piece of blue litmus test paper (to be had of almost any chemist in 2*d.* or 3*d.* books), and cutting a slice or section from any succulent stem, press the cut surface on to the paper, and the latter will become instantaneously reddened, showing the presence of an acid or oxygenated fluid. There is thus in the plant a two-fold or polar arrangement identical with that of the copper wire as shown on page 355, attracting oxygen at one end and rejecting it at the other, which constitutes the first or initiating stage in the construction of a battery, we may fairly infer that a corresponding office is fulfilled in the plant. It has often of late, from the many different electrical phenomena developed in organic life, been surmised that animals and plants, &c., must have some sort of a battery arrangement; yet, for want of this commencement not having been detected, the precise nature of such natural batteries has hitherto been a sealed book.

A galvanic battery consists essentially of two different metals, or other substances, of which it is indispensable that one should possess a greater affinity for oxygen, and consequently be more readily dissolved than the other. For this reason and for its cheapness it is that zinc is generally used, and from which, by its solution in the acid, the electric force is developed, the amount of force resulting being always in proportion to the quantity of metal consumed. By joining a plate of copper at the top of the zinc and bending it down into the acid parallel with the latter, and at a short distance apart, the oxidation and solution which took place at the neck (see fig. 64, page 355) is now transferred to the whole surface of the zinc immersed; the second or copper plate serving only to act as a conductor, collecting the force developed, and putting it in communication at the opposite ends so as to form a connected circuit. Let the upper ends be now divided at their junction with each other, and be connected by the insertion of some moist conducting substance capable of being decomposed, and there will then be precisely the same amount of chemical decomposing force exerted between the upper ends as has been developed in the battery below. The idea has

hitherto been that the force obtained from the zinc has made its way through the acid to the copper, and then travelled upwards and back to the zinc at the other end, forming a constantly circulating passage of the electricity from one metal to the other. In deference to these views the lower half of the metals in the acid are termed poles, whilst the upper ends were named by Faraday "electrodes," from two Greek words—*elektron*, electricity, and *odos*, a way, meaning the way the electricity passes; but more modern views, however, show the matter in a far more consistent light.

It is an unvarying rule that it is not possible to develop one of the two electric states without at the same time producing an equal amount of the other. Hence on the poles in the acid becoming electrically charged by the chemical action taking place, the electrodes, or opposite ends of the metals in the air, are inductively charged at the same instant, each with the respective complementary or opposite condition; so that, instead of its being a transference of force from one part to another, it is, in fact, its equivalent, being brought into existence simultaneously at another locality. The preceding distinction may seem to be a very trivial matter and scarcely worth the trouble of insisting upon, but in reality it is far otherwise; for whilst with the circulation theory it is wholly impossible to explain many of the phenomena of organic life, yet, on the other hand, by the induction principle we are furnished with a clue which at once leads us to their full and clear interpretation.

To return to the seedling plant. It will now be seen that whatever amount of chemical action may be excited by light and sunshine in the seedling leaves, a corresponding amount will be induced at the opposite end—namely, in the root. But there is also another effect now coming into play. The axillary bud, partaking of the influence, is thus forced into action; the central stem elongates, and its crowning tuft of embryo leaves becomes stimulated into growth. Let some small thickish leaf, such as that of *Begonia fuchsoides*, be cut in two, and the lower edge of the upper part be placed for a minute or two in the dilute magenta dye with the point upwards, and then, on being taken and rinsed and examined with a pocket lens, it will be found that the leaf is composed of two different layers—the upper green one retaining its natural colour, but the under surface receiving the stain the same as the roots; different species of leaves showing different arrangement of these opposite conditions. Take a cutting from a scarlet *Geranium* in active growth, and having inserted the cut end in a wineglass of the diluted dye, set it in the sunshine for a few hours, more or less according to the time of year, &c., and it will be found that the stain will have been drawn up through certain parts of the stem and along the centre of the leafstalk into all the ramifications of the ribs and veins occupying the under side of the leaf. Should there happen to be an axillary bud present, a section through this will show that every embryo leaf will also have received its partial colouring in the same way. That this absorption of the stain is due to the expanded portion of the leaf may be proved in the following manner. Let the cutting consist of not less than three fair-sized leaves, and from which cut off the middle one, leaving the stalk still attached with an entire leaf both above and below it. It will now be found, after the stain shall have penetrated the upper leaf, that the decapitated stalk will have been passed by without any of the stain having entered it, and of course any axillary buds would be thus shut out of the circuit in like manner. A good illustration of this fact has recently occurred. A plant of *Abutilon* having two axillary flower buds almost ready to expand had its leaf removed, when the buds, ceasing to grow, shrivelled up and dropped off.

It will hence be understood how it arises that an "eye" or axillary bud is capable of being developed into a separate plant. It contains an entire polar arrangement of leaves and root cells, which, by the chemical action of the primary leaf, are forced by the inductive power into corresponding growth. Now, an entire plant consists of as many separate individuals as it possesses leaves and leaf buds, but which, by being thus massed together, multiply the force for the general purpose of the community. Let a steel magnet be broken in two, and each part will yet have its own north and south pole; or if it be crushed into hundreds, or even thousands, of pieces each fragment, however minute, will still possess its polar arrangement. Let a quantity of these broken portions, or even a handful of small iron nails or iron filings, be dipped into with the end of a magnet and they will attach themselves in strings and clumps by their alternate poles, and may be moulded by the hands into almost any form or shape. In this same manner are plants built up of innumerable minute polar bodies termed "cells," which, by their individual growth and division or multiplication, effect the increase in the general bulk of the structure. Thus, although each leaf and bud constitutes of itself

a single battery, the addition of other batteries being made to the fabric adds an accumulated force to the combination, and thus constitutes the full-grown plant a compound battery. About ten years subsequent to Galvani's discovery of galvanism Volta found out that by combining with the preceding other pairs of metals in a particular manner—namely, in alternate series—an increase of power could be obtained, almost to an unlimited extent; hence the distinction, which is a most important one, between galvanism and voltaic electricity is that one is a single circuit, whilst the other is composed of any number of pairs of elements above one. Galvanism, however, which is the fundamental stage in the latter, is not restricted to the metals, but appertains very generally to almost all bodies in Nature. Thus it has been obtained from the opposition of two different gases—from a combination of blood and muscle; whilst by the use of very delicate instruments a so-called current has been detected between the pith of

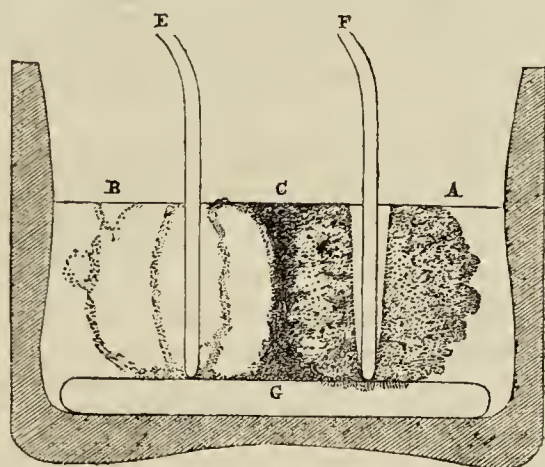


Fig. 96.

a tree and the albumen or newly forming growth taking place between the wood and the inner layers of the bark encircling it. We have in this fact a most indisputable proof that an electric agency is at work between the unstainable portions and those which receive the dye; and it is also a well-known circumstance that electro-chemical decompositions invariably take place in a direction at right angles to, or, in other words, transversely through membranes from one side to the other, and that these latter are not the slightest impediment to the passage of electrolysed elements; and hence it is that fluids are passed into and out of plants, not through any apertures or openings, but electrolytically—that is, by “endosmose” and “exosmose,” which in reality is the same thing. It is the general belief that membranes have some sort of power of forming other substances, and hence they

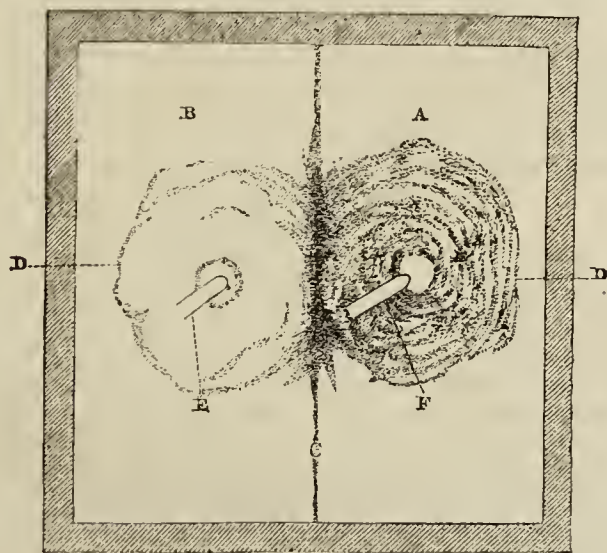


Fig. 97.

are styled “formative” and “præformative,” &c., according to their supposed action. This, however, is altogether unsupported by any known fact, and is only a mere fanciful speculation handed down from the darker ages, and has no foundation whatever to rest on; but, on the contrary, it can be shown practically that they are mere mechanical boundaries of limitation between the two opposing electro-chemical forces by which they are produced, so that they are thus entirely passive, as much so as the shell of an egg. As this is an important fact that hurls a deadly blow at the fundamental basis of existing physiological views of both animal and vegetable life it will require some more confirmatory

evidence than mere assertion, and this the following experiment will be found to supply.

Fig. 96 is a vertical section of a glass vessel half filled with white of egg, and having a flat piece of ivory, G, at the bottom for the two platinum electrodes, E and F, from a small Smee's battery to rest upon. After a time the albumen assumed the forms represented in A and B; but it will be seen by fig. 97 that the divisional line C G between the electrodes in fig. 96 is a vertical section of a membranous wall extending quite across the vessel in fig. 97 (which latter is a surface view of fig. 96), so that we have here a diaphragm electrically formed at the spot where the two opposing forces meet. These, meeting halfway in the direction D D, are deflected at right angles, and so carry with them and extend the albuminous wall transversely in both directions. There are also several other effects illustrated here that are explanatory of various so-called vital actions that will be hereafter referred to.—W. K. BRIDGMAN, Norwich.

BRUSSELS SPROUTS.

THAT there is a great diversity of opinion respecting the best mode of cultivating Brussels Sprouts must, I think, be generally admitted. Excellent results are frequently secured by different modes of procedure; but I think with your correspondent, “G. O. S.,” at page 503, that not only in the point he specially there raises, but also as to the best time of sowing and planting, the experiences of some of your numerous correspondents, large growers in various parts of the country, would be advantageous to the amateur and professional gardener. It little matters how select the number of vegetables required may be, or how small the means at command for culture, this always stands first in its class. My usual practice is to make two distinct sowings, the first with the spring Cabbage; and instead of planting in autumn with the Cabbage as is generally done, the plants are pricked out somewhat thinly under handlights, or in a cold frame, protected from the most severe frosts. Frames are to be preferred, as a larger number may be more readily protected. During winter the land is selected, deeply trenched, and heavily manured, and the plants after receiving the necessary hardening by being left for some time fully exposed, are transferred to their permanent quarters. From these we can gather abundantly at any date after August should they be required, and frequently early sprouts are much relished after a long supply of the summer vegetables. Up to the new year we obtain a heavy crop of well-formed sprouts, during which time the tops are cut and much appreciated at the table, and without any apparent injury to the plants, which are picked over again in early spring and destroyed.

The second sowing is made from the last week in March to the first week in April, as the weather and state of the land permit. The seeds are sown in drills 2 feet apart, and sufficiently deep to allow of the drill being half filled with burnt vegetable refuse, as wood ashes, on which a little red lead is dusted to prevent the ravages of both mice and birds. When the plants are sufficiently large they are thinned to 2 feet apart, and grown in this manner they experience no check as in the ordinary way. From this sowing we have now some fine crops. The stems are a dense mass of hard large sprouts from the soil upwards. From these the tops are not taken, as it not unfrequently happens that the edges of the leaves and sometimes the whole top become injured by the weather, and they are not so remunerative as in the case of the first sowing; but in order to supply a succession of tops through winter the thinned plants are saved, pricked out on a piece of spare land and planted after the second early Peas, a foot apart each way. These are more hardy from being less succulent, and the tops are invaluable as winter greens.—J. W. SILVER, *Farnley Hall Gardens, Otley, Yorks.*

IN reference to “G. O. S.’s” question on page 503, relating to Brussels Sprouts, I think the following may not be out of place in your valuable Journal. The question raised by “G. O. S.” is as follows:—To produce the best of Sprouts ought the crown of the plant to be cut out or not? Having had some experience in growing vegetables, I think I can prove to “G. O. S.” and your readers generally, that it is best to let the crowns grow, as by cutting them out the plants are liable to decay. For instance, if you cut the crowns out and the winter be severe, there is no protection for the sprouts, and the plants are very liable to be killed by the frost. Then, again, with rain, the continuous exposure of the cut surface during wet weather would cause decomposition. But supposing the plants are not killed by the frost or rain, the sprouts might be more plump, though the quantity would be considerably less, as by cutting the crowns out the sap has no outlet except to the sprouts, and as soon as these are removed

the plants would be useless; whereas if you allowed the crowns to grow you would have a continuous supply of fine sprouts during the winter and spring months, and in spring vegetables of almost any kind are very useful when the crowns might be utilised with advantage. For exhibition purposes the crowns might be cut out, as it would enable the sprouts to receive the sap that otherwise would supply the crowns. But a market grower who grows for profit, who wants quantity as well as quality, would find it most profitable to let the plants take their natural course. He thus obtains a larger quantity of sprouts, and has the crowns also, which when greens are scarce would realise a fair price in the market, as they are preferable to Turnip tops.

I have answered the question to the best of my ability. I cannot conclude without remarking that Brussels Sprouts form one of the most important outdoor winter crops in the market garden, and being a vegetable that is well liked finds a ready sale. It is also easy to grow, requiring little labour to bring it to a saleable state. It is liked by gentlemen, cottagers, and the public generally.—EBOR.

NATIONAL ROSE SOCIETY.

ANNUAL GENERAL MEETING.

THE members of the above Society who assembled at the Horticultural Club, Arundel Street, Strand, on Thursday last, were favoured with much more agreeable weather than was the case at the previous Annual Meeting. Perhaps to this circumstance may be attributed the good attendance, there being present representatives from no less than twelve counties. The following are the names of the members who assembled:—H. Appleby, G. Baker, The Hon. and Rev. J. T. Boscawen, T. F. Burnaby-Atkins, J. Burrell, B. R. Cant, C. E. Cant, R. B. Cater, Rev. A. Cheales, J. Cutbush, C. Davies, Rev. J. M. Fuller, G. P. Hawtrey, T. B. Haywood, C. F. Hore, J. Laing, J. Mayo, W. Mount, G. Paul, J. D. Pawle, G. Prince, W. G. Sharp, C. Turner, W. Walters; the two Hon. Secretaries, Rev. H. H. D'Ombraim and Mr. Edward Mawley; and the Hon. Treasurer, Mr. William Scott. One of the Vice-Presidents, the Hon. and Rev. J. T. Boscawen, took the chair at 3 P.M., the proceedings being commenced by Mr. Edward Mawley reading the circular calling the meeting together, the minutes of the last Annual Meeting being on the motion of the President taken as read. The Rev. H. H. D'Ombraim then read the following General Report:—

The Committee of the National Rose Society desire to congratulate their members upon another successful year. Although last season again proved in many respects an unfavourable one, they have nevertheless the pleasure of reporting that the influence of the Society still continues to increase, that its exhibitions have been well supported, and that its financial position has considerably improved, while its prospects for the ensuing season are at the present time most encouraging.

The Committee would suggest that amongst other permanent work for the coming year might be the adoption of an idea first proposed by the late Wilson Saunders, F.R.S.—viz., the compilation by the Society of a complete catalogue of Roses, containing a careful description of each variety, its raiser's name and date of introduction; this catalogue to be afterwards printed and issued by the Society at a nominal cost. Also, whether it would not be expedient that a lecture on Rose culture be delivered next year by a member of the Society on the occasion of the holding of one of its provincial exhibitions.

FINANCIAL STATEMENT.—It will be remembered that the Society, after defraying all outstanding accounts, entered upon the year 1880 with a balance of £56 19s. 1d. At the commencement of the present year, notwithstanding that the amount paid in prizes greatly exceeded that awarded in the previous exhibition season, there still remains in the Treasurer's hand a clear balance of £104 3s. 7d. The present favourable condition of the Society's finances may to some extent be attributed to the increased number of subscriptions received. It should, however, be stated that it is also due in a great measure to the many handsome cups and pieces of plate presented last year as special prizes; and the Committee desire to take this opportunity of thanking those friends who so generously came forward and assisted the Society by these gifts, the competitions for which contributed so much towards increasing the interest of their last metropolitan exhibition.

AFFILIATED SOCIETIES.—The Rose Societies of Farnham, Horsham, and Wirral have during the past year become affiliated. In response to the kindly feeling exhibited by the proprietors of the "Journal des Roses" and Mons. B. Lenacrt, the President of the Rose Club at Antwerp, in offering medals for competition at the Society's Southern Show, the Committee presented the Rose Societies of Brie-Comte-Robert and Antwerp respectively with two of their own medals.

ARRANGEMENTS FOR 1881.—At a meeting held in April last the Committee appointed one of your Hon. Secretaries to visit several provincial towns where a wish had been expressed that the Society should hold its second Exhibition this year—viz., Cheltenham, Liverpool, Bath, and Sheffield. In the case of each of the towns last named an earnest desire was expressed by the authorities that the Exhibition should be there held, and after much deliberation the Committee decided in favour of Sheffield, owing in part to its priority of application, leaving Bath for the year 1882. Three exhibitions will be held this year. The metropolitan Show at the Crystal Palace early in July, the usual provincial Exhibition in the Botanic Gardens at Sheffield, and an additional or autumn Show in the gardens of the Botanical and Horticultural Society at Manchester in September. In respect to the metropolitan Exhibition the Committee regret to state that they have been obliged to relinquish the privilege granted to members last year of a private view, in consequence of the dissatisfaction created amongst the Crystal Palace season-ticket holders, but hope by a different disposition of the staging to obviate this difficulty. Should, however, any difficulty in inspecting the blooms be experienced by members visiting the Show at its opening, this will probably render necessary some entirely different arrangement for the future.

MEMBERS' PRIVILEGES.—Members subscribing £1 will be entitled to six transferable tickets, and those subscribing 10s. to three transferable tickets.

Each of these tickets will admit the bearer of it to any one of the Society's exhibitions. Exhibitors at the Crystal Palace will each receive, as in former years, a non-transferable pass, enabling them to leave and return to the Palace during the day.

In conclusion the Committee desire to thank their local Secretaries for their hearty co-operation, and trust that by increased exertions the interests of the Society may be still further promoted, the number of members increased, and the influence of the Society both at home and abroad more widely extended.

The Chairman next proceeded to submit the several paragraphs of the Report to the consideration of the members, the first to be discussed being that referring to the compilation of a catalogue by the Society. After some expression of opinion by Mr. B. R. Cant and George Baker, Esq., that a work of that character would require to be so carefully executed as to become an authority both in nomenclature and description, it was decided a catalogue should be compiled. Mr. G. Paul then proposed that a committee be appointed for the purpose, to consist of six nurserymen and six amateurs, to be nominated by the members then present. The Rev. H. H. D'Ombraim moved as an amendment that the work be delegated to the Executive Committee, the members of which could be specially selected to carry out this work. This was seconded by T. F. Burnaby-Atkins, Esq., and carried, the original motion being negatived. In some further remarks upon the subject it was stated that the catalogue would probably be issued at the price of 6d.

The desirability of a lecture on Rose culture being delivered at one of the provincial shows was then discussed, and on the suggestion of the Chairman, W. Scott, Esq. moved that the President of the Society, the Rev. Canon Hole, be desired to give a lecture at the Sheffield Exhibition on the 14th of July, 1881. This proposition was received with expressions of general approval, and carried unanimously. After the Chairman had referred to the satisfactory balance to the Society's credit, Mr. Scott, as the Honorary Treasurer, proceeded to read the appended balance sheet:—

BALANCE SHEET FOR THE YEAR ENDING 30TH NOV., 1880.

		<i>Receipts.</i>	
		£	s. d.
Balance in hand and at Bankers, 30th Nov., 1879	.. .. .	56	19 1
Subscriptions received	.. .. .	239	15 6
Donations—To Society	.. .. .	9	1 0
„ „ Special Prizes	.. .. .	10	5 0
Affiliation Fees from Local Rose Societies	.. .. .	12	17 0
Entrance Fees	.. .. .	6	0 0
From Crystal Palace Company	.. .. .	105	0 0
„ „ Botanic and Horticultural Society, Manchester	.. .. .	100	0 0
		£539	17 7
		<i>Expenditure.</i>	
		£	s. d.
Printing, Stationery, and Advertising	.. .. .	34	8 6
Postage, Telegrams, Messengers, and Sundry Expenses	.. .. .	18	14 6
Expenses—Crystal Palace Exhibition	.. .. .	8	2 6
„ „ Manchester	.. .. .	5	3 0
Secretary's Expenses to Sheffield, Liverpool, Bath, and Cheltenham	.. .. .	6	12 0
to arrange for Provincial Show for 1881	.. .. .	12	15 6
Medals	.. .. .	8	8 0
Accountant for Keeping Books, Preparing Balance Sheet, and other	.. .. .	8	8 0
Services rendered	.. .. .	206	15 0
Prizes—Crystal Palace Exhibition	.. .. .	133	15 0
„ „ Manchester	.. .. .	1	0 0
„ „ St. James's Hall Exhibition, 1877 (arrears), omitted in	.. .. .	14	14 9
previous balance sheet	.. .. .	104	3 7
Balance at Bankers	.. .. .	£89	8 10
Cash in hand	.. .. .	14	14 9
		£539	17 7

Examined and found correct.

GEORGE P. HAWTREY. } Auditors.
GEORGE PAUL. }
WILLIAM SCOTT, Hon. Treasurer.

*The above are Money Prizes only, and do not include the various special Prizes presented by Members of the Society.

The arrangements for the ensuing year then received attention, and with one exception were formally ratified. It was stated in the Report that priority of application had determined the Committee to hold the provincial show at Sheffield in 1881, "leaving Bath for another year." Mr. G. Paul proposed that the Secretary be instructed to make arrangements for holding an exhibition at Bath in 1882. Mr. R. B. Cater, as a representative of Bath, seconded the motion, and assured the Society they would meet with a hearty welcome. The proposition was then unanimously adopted. The refusal of the Crystal Palace authorities to continue the privilege to the members of a private view at the Rose Show was criticised, and much dissatisfaction was expressed at the course taken; but the Rev. H. H. D'Ombraim explained that it was owing to complaints the Palace Company had received from numerous season-ticket holders, who considered themselves entitled to a similar privilege. It was the general opinion of the meeting that no alteration for the ensuing season could be made respecting the metropolitan Exhibition, but that other arrangements might be desirable in succeeding years.

The schedules were next considered, and the Rev. H. H. D'Ombraim stated that they had been drawn up on a very liberal scale, a total of £486 being offered at the three exhibitions. This he considered was more than the Society could afford, unless some friends should contribute special first prizes, as in the past year, which would reduce

the expenses without detracting from the interest of the schedules. After some discussion it was decided to leave any necessary alterations to the Executive Committee. The Rev. A. Cheales then suggested that a small gold instead of the silver-gilt medal should be offered to the affiliated Societies, as he believed it would be much more highly valued. This was seconded by T. B. Haywood, Esq., and it was finally determined to offer a gold medal at cost price to such of the affiliated Societies who desired it. The annexed list of officers and Committee was accepted, and the meeting concluded with votes of thanks to the Chairman, the Honorary Secretaries, and the Treasurer.

LIST OF COMMITTEE AND OFFICERS FOR 1881.—President: The Rev. Canon Hole. Vice-Presidents: George Baker, the Hon. and Rev. J. T. Boscawen, James McIntosh, the Worshipful the Mayor of Sheffield. Committee: H. Appleby, J. H. Arkwright, R. N. G. Baker, Rev. H. B. Biron, *W. Brockbank, Rev. C. H. Bulmer, T. F. Burnaby Atkins, Rev. J. B. M. Camm, B. R. Cant, R. B. Cater, Rev. A. Cheales, Captain Christy, J. Cranston, J. L. Curtis, H. Curtis, J. Cutbush, C. Davies, Rev. J. M. Fuller, Rev. F. H. Gall, T. Graveley, G. P. Hawtrey, *T. B. Haywood, C. F. Hore, R. Hogg, LL.D., T. Jowitt, L. A. Killick, J. Laing, M. T. Masters, M.D., F.R.S., H. K. Mayor, J. Mitchell, G. Paul, W. Paul, J. D. Pawle, *Rev. J. H. Pemberton, Rev. E. N. Pochin, G. Prince, T. F. Rivers, W. Robinson, A. G. Soames, *W. G. Sharp, J. T. Strange, J. Tinsley, C. Turner, H. J. Veitch, and *F. T. Wollaston. Hon. Secretaries: the Rev. H. Honeywood D'Ombraim and Edward Mawley. Hon. Treasurer: W. Scott.

Those names preceded by an asterisk are the newly elected Members of the Committee.

FRUITS FOR COLD DISTRICTS.

AGAIN it is necessary to remind your correspondents that without naming the county wherein happened any particular success referred to their communications are of little value. This especially is necessary in the matter of ripening Grapes without fire heat. Regarding the planting of Apples and Pears, were I again to plant, I would have whole rows of Lord Suffields and Ecklinville Seedlings, and of Pears rows of Marie Louise d'Uccle, and only slight sprinklings of other varieties. That is for market purposes where we want quantity first. I have had no early dessert Apples for three years; and, for the same purpose, here to grow late ones in the face of the American supply is not likely to be profitable. The Apple growers' chance is to defeat the foreigners, and this Lord Suffield accomplishes.

We lately had the history of Lord Suffield, and I think it would be interesting to have that of Ecklinville Seedling. I am the more desirous of the latter, as hereabouts we have an Apple, also hardy, and as like it as possible—that is, as it is grown in the north. My attention was first particularly drawn to it by the very large and handsome unnamed specimens exhibited by Her Majesty at the Carlisle International Exhibition, and it was then I determined to give it a trial to test its hardiness, which has proved so satisfactory. It has many times impressed me that it would be appropriate to give it the name of "Queen's Prize." What says its raiser, or, lacking him, those in authority? A Strawberry, too, I have grown these last two seasons proved to be quite regardless of wet, and, of course, I shall in future plant only that one variety, and a further description of which I will give at some other time.—JOSEPH WITHERSPOON, *Red Rose Vineries, Chester-le-Street, Co. Durham.*

ZONAL PELARGONIUM WEST BRIGHTON GEM.

SPORTS from the old and valuable variety Vesuvius are now numerous, which is the more singular since no other Zonal appears to possess the same property of producing growths differing in such a marked manner from the original. Some of the forms so produced are of great merit, notably the white variety distributed by Mr. Cannell, whose salmon-coloured form is also very free and attractive; and the striped variety, "New Life," is as singular as its name implies. There are also sports of various colours that have originated in different places, but as a rule they have not obtained more than local fame. The variety in question, however, West Brighton Gem, will prove—indeed has proved—of real and general usefulness; it has been frequently exhibited during the past three years, and has proved its worth for both winter-flowering or bedding purposes.

It is a very distinct and fixed sport from Vesuvius, perhaps a shade lighter scarlet than its parent, but it chiefly differs from that variety in having transparent growths and flower stems. The plants are very dwarf and compact, barely exceeding 6 inches in height, producing without topping from eight to twelve shoots on a plant in a 5-inch pot. It is a rapid grower although the shoots are short and slender, and no sooner is a cutting struck than it commences branching, so that the surface of the soil is quickly covered with several shoots which grow in an oblique direction,

thereby very soon forming a dwarf and compact plant, but the flower trusses are upright. As a bedding plant its very floriferous character and dwarf habit will cause it to be extensively used, and that it is a free winter-flowering variety was abundantly evident from the gorgeous mass of bloom I saw on a batch of a thousand plants a few days since at the West Brighton Nursery. But lest it be thought that I am overpraising this variety I may add that its value has been twice acknowledged by the Floral Committee of the Royal Horticultural Society, for last winter a cultural commendation, and in May last a first-class certificate, were awarded for it; while at Brighton, the Crystal Palace, and other places where it has been exhibited high commendations have been granted. The peculiar characteristic of its pale flower stems, similar to those of the old Cerise Unique, renders it a favourite for cutting. The leafstalks are also of a transparent hue, and the centre of the leaves are peculiarly marked with the pale green like the variety just mentioned. It is this singular feature and its dense dwarf habit that render it distinct.

This plant originated at the West Brighton Nursery; and Mr. Miles, the proprietor, after proving its value, obtained a very large stock, with the object, I presume, of offering plants at a price that will bring it at once within the reach of everyone.—MEDALLIST.

FOREIGN SUPPLIES AND HOME PRODUCTION.

WE are entering upon a great change of circumstances in relation to the produce of our country. Foreign competition, although as yet only in its infancy, has reduced the value of our products, and British agriculturists feel its effects in reduced returns. Instead of repining over those inevitable changes it would be more desirable if we energetically endeavoured to face them. There are large tracts of land in this country that might be brought into cultivation, and much that is already in occupation that could be greatly improved so as to yield increased produce. In many cases the rent of the land might be realised with a small additional outlay by planting fruit trees, if only in the hedgerows. Tall standards of Apples, Mussle and Bullace Plums, Damsons, Kentish Cherries, Filberts, and Cob Nuts, all will do well and make a good return. The grass lands may be planted with Pear trees a good distance apart. In wet positions plant Quinces; and in every available spot plant Walnut trees, as they are valuable both for their fruit and wood. In swamps plant Willows, which are as profitable as any crop that can be grown in such positions. Some of the fruits mentioned are sent to this country in large quantities; but English produce, being of better quality, always commands higher prices, which should be sufficient to encourage our growers. The importers deserve praise for their energy, but they set us an example which we neglect to follow.

The following are some of the fruits, vegetables, and plants that are imported in large quantities, all of which could be grown here and of better quality. From Holland we have large quantities of bulbs, Lily of the Valley, Spireas, Walnuts, Horseradish, and Potatoes. Belgium sends Azaleas and Camellias, which could be grown in the west of England almost without protection. Hamburg sends Grapes, which a few ground vineries would produce in better condition. France supplies early Lettuces, small salads, Endive, Radishes, Carrots, Asparagus, and early fruits, and later on Apples, Pears, Tomatoes, Artichokes, &c. Our own little Channel Islands contribute excellent green Figs, Grapes, and Pears; while Italy, Spain, Portugal, and the islands of the Mediterranean stock our markets with fruits which our own climate cannot produce. America sends great quantities of Apples, but they are of inferior quality and will not bear comparison with home-grown fruit. There is consequently every encouragement for the increased cultivation here of many fruits which other nations now supply us with to their own profit.—R. C.

PRUNING LUXURIANT VINES.

I MUST beg to differ from "R. P. B.," especially in the latter part of his notes on "Pruning Luxuriant Roses and Vines" (page 452). I cannot see why hard pruning back young Vines should cause a weakly growth the following season, especially if the Vines have made abundance of roots; and judging from "R. P. B.'s" remarks his Vines must have grown vigorously and strongly, and the main stems must have strengthened considerably, or the main leaves would not have been thrown off—a sufficient indication that abundance of roots were working well. Seldom, if ever, are the main leaves thrown off the Vine when root-action is only moderate; and in proportion to root-action, if confined to a main stem the rod naturally swells. If hard cutting back in all kinds of fruit trees (root-action being good) is productive to luxuriant

growth, why not with the Grape Vine? I shall contend, strong young Vines may be—however insufficiently developed are the lower buds at, say, 1 foot from the border—pruned back to any one of these eyes; if slowly brought on the following season they will produce strong luxuriant growth. Not that I say any advantage will be gained by close pruning back if sufficient eyes will burst into growth to swell or strengthen the bottom of the Vine. Prune an old Vine close back, and it will, in the majority of cases, break into growth from places where neither joint or eyes are perceptible, and if root-action is good the growth will be strong. Why should not strong young Vines produce a luxuriant growth when well cut back, instead of a weak puny one as “R. P. B.” thinks? If fruit is required, large prominent buds are certainly desirable.—SCIENTIA.

GLASS STRUCTURES FOR AMATEURS.—No. 2.

THE annexed engraving, fig. 98, represents the section of a half-span house—a most useful form for a variety of purposes. The

appurtenances at the back are the same as shown in the figure on page 462, and it is not necessary to repeat them here. The following are the references to the section now submitted:—*a*, Vine border; *b*, rubble; *c*, drain; *d*, pillars to carry arches of front wall to allow Vine roots to pass out; *e*, front shelf; *f*, pathway; *g*, back stage; *h*, hot-water pipes, 4 inches; *i*, front lights to open entire length of house with crank and lever apparatus; *j*, ridge lights to open full length of house; *k*, stays for trellis wires for Vines, one stay to each rafter, and wires 9 inches apart; *l*, iron tie-bar, one to each rafter; *m*, suspended shelves over pathway; *n*, border for Camellias or other plants.

It may be useful to refer to the construction of the houses. Economy is often sought by the employment of cheap materials, in which there is no true economy, as the materials to be cheap must be of inferior quality. There is no bargain in bricks badly burned and that will perish with frost, even if they are had for a few shillings less per thousand than properly made and well burned; therefore use good bricks. Mortar made of one part lime and two parts sand will be suitable. In timber avoid cheap

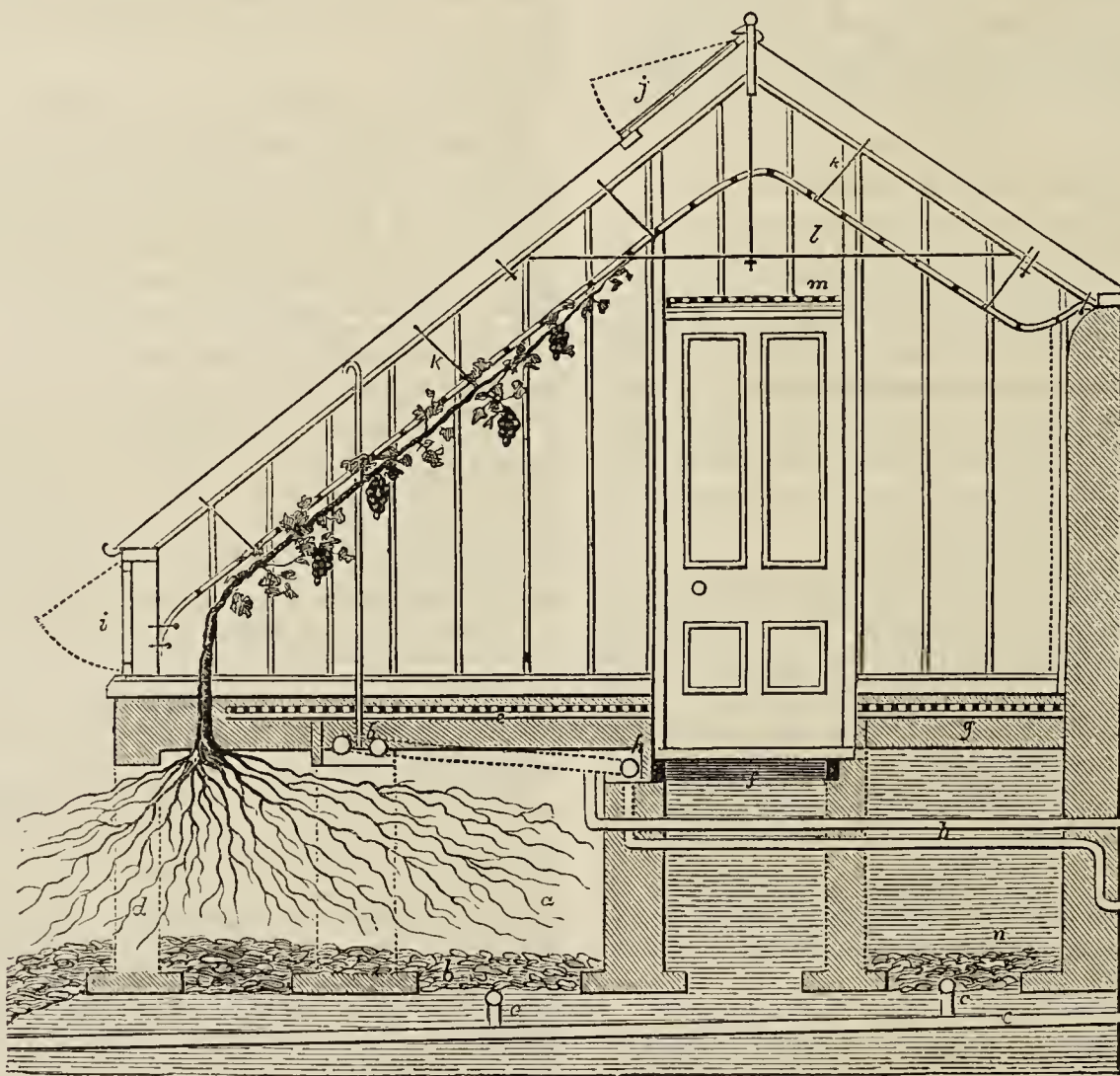


Fig. 98.—HALF-SPAN HOUSE, SECTION AND END ELEVATION.

Scale—a quarter of an inch to a foot.

deals, which on account of the sap they contain are totally unfit for glass structures, where such wood decays in an incredibly short space of time. Sound red deal should be employed, or, better still, pitch pine. In hanging the lights brass connections are more durable than cast iron; the expense of replacing the latter in a few years, presuming them to be employed, will equal the cost of the difference between the two metals. For the ventilating apparatus wrought iron is the only suitable material; cast, from not “giving” when the lights are stiff, snaps. The wires for the trellis should not be galvanised, but the best drawn and annealed, No. 6; the stays and strainers (angle iron) should also be wrought or malleable iron, all painted. For the pathway, where timber is employed, have it creosoted, or it will speedily become a prey to fungus. This more especially applies to the sleepers. In the long run cast-iron sleepers, with a ledge to receive cast-iron grating for pathways, are cheapest.

In forming the rebate in the rafters and sashbars half an inch is deep enough, and a quarter of an inch wide for the reception of the glass, which should be 21-oz. thirds quality, bedded in putty

and secured with copper tacks. No upper putty should be used, but have the wood dressed off level with the glass. The sharp upper edge of the rebate should be taken off and painted, covering a little of the glass, but not more than the width of the rebate, and the roof will be quite waterproof—more so than when top putty is used. Laps a quarter of an inch wide are ample, being better less than over. Sixteen-ounce glass is cheaper than that recommended, but is more liable to breakage. Drip is a serious matter and often occasions great loss in the keeping of Grapes; it may be almost entirely prevented by having a small groove made in each rafter and sashbar on both sides their entire length a little below the under side of the glass. Stout open lath stages are more durable and in every way better than solid. The colour of paint for stages and also for the house should if in a smoky district be stone, and if in the country the roof may be white. Dark colours are objectionable.

The angle of elevation in the different structures is about 40°, which is sufficiently sharp to allow of the rain passing off quickly. 45° is usually considered most suitable; but the higher the angle

the greater of necessity must be the height of the back wall, as is shown by fig. 99, applied to a lean-to roof to a scale of a quarter of an inch to a foot. It will be seen that when the angle of elevation is 45° the width of the house and the height of the back wall are equal, calculating from the base line a of the quadrant. With an angle of 40° the height of the back wall is diminished by $2\frac{1}{2}$ feet, and *vice versa* for every 5° of arc. In calculating the angle it must be from the base—i.e., top of the front or side lights direct to a point at the same height at the back wall of a lean-to, or the centre of a span. I do not, however, propose to enlarge upon this subject, it will suffice to note that the higher the pitch of the roof the greater the accumulation of heat in the upper angle, on which account it is desirable to keep the slope as low as is consistent with the admission of light. The lower the

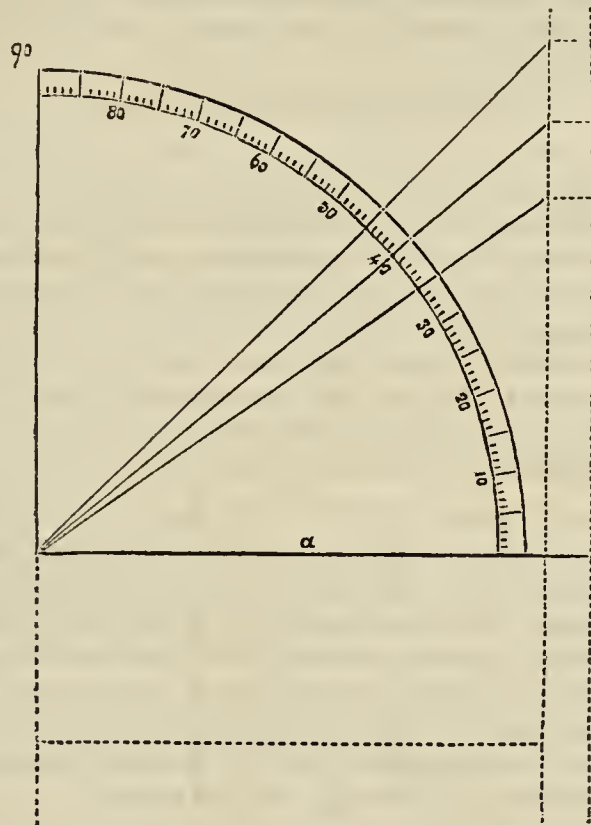


Fig. 99.

angle the more equable the temperature at the top and bottom of the space enclosed; but if too low it will tend to drip, and a low pitch considerably lessens the rafter, consequently reducing the extent of surface available for training Vines. For structures where little fire heat is employed 40° is the most suitable angle of elevation. To avoid drip it should not be less than 30° , which will answer well enough for general purposes, and for early forcing 45° is quite sharp enough.—G. ABBEY.

REVIEW OF BOOK.

Anatomical and Physiological Atlas of Botany. By DR. ARNOLD AND CAROLINA DODEL-PORT. Parts 1, 2, and 3. W. & A. K. Johnston, Edinburgh and London, 1880.

THIS work was originally published in Germany, where it was so well received that it has induced the production of an English edition, the accompanying text being translated and edited by D. M'Alpine, F.C.S., Lecturer on Botany at Edinburgh. It is precisely what its title states—namely, an "Atlas of Botany," intended for use in schools or for illustrating lectures. The very clear manner in which the drawings have been prepared and coloured, together with their size, render them admirably adapted for either of those purposes. The object is to convey to the student of botany an accurate knowledge of the chief types of vegetable organisation, the phenomena of fertilisation, nutrition, and growth, the several organs and their functions, in fact everything of structural or physiological importance connected with the life of plants. The three parts we have received fairly indicate the scope of the work. They contain six plates each, size 3 feet by 2 feet, giving representations of portions of plants magnified from fifteen to eight thousand times, the following being the plants selected:—*Salvia Selarea*, *Volvox globator*, *Mucor Mucedo*, *Drosera rotundifolia*, *Ophrys arachnites*, *Aspidium Filix-mas*, *Puccinia graminis*, *Lilium Martagon*, *Pinus Laricio*, *Schizomycetes*, *Bacterium anthracis*, *Ulothrix zonata*, prothallium of *Aspidium Filix-mas*, *Cycas circinalis*, and *Polysiphonia subulata*. Each part is accom-

panied by a handbook fully explaining the plates, and forming a compendium of botanical instructions, containing all the latest information upon the subjects on which they treat, and excluding all doubtful matter. The following short extracts will suffice to indicate how this is accomplished:—

"*Cosmarium botrytis* belongs to the Desmidiaceæ, a group of unicellular Algae of symmetrical form. The cell appears as if in two halves, owing to a deep constriction in the middle. The protoplasm, coloured by chlorophyll, is usually interrupted in the middle, where a colourless nucleus is often to be seen. In each half-cell the bright green protoplasm is arranged in bands or discs, which bear a definite relation in number and arrangement to the larger globular or oval bodies—the starch-grains—which are single or in pairs, or even more in each half-cell. Besides the green protoplasm and the starch grains there is a colourless fluid in the cell, in which a large number of dark granules frequently occur with an oscillating movement, the so-called 'Brownian' movement. The tolerably firm cell-wall of the Desmids is often covered with warty elevations, longitudinal striations, or wave-like prominences, and thin places or 'pores' also occur. All these markings on the cell-wall, which are characteristic for genera and species, often exhibit a definite arrangement in their distribution and a constancy in their number. Many of the Desmids which live isolated possess the power of slowly changing their place, while those species in which a number of individual cells are united into a filament do not possess that power."

"*Volvox globator*, until quite recently considered by many naturalists as an animal, is the most complicated form belonging to the family of Algae known as Volvocineæ. This family consists of plants made of a number of individual cells united into a rounded colony or cœnobium. Each individual cell is furnished with two vibratile cilia, which, acting in concert, give the whole a slow, stately, rolling motion in the water. Reproduction is of two kinds—non-sexual, in which individual cells of the colony repeatedly divide while undergoing rapid enlargement, and each portion gives rise to a young colony; or sexual, by the blending of spermatozooids and oospheres to form an oospore."

"The common Brown Mould (*Mucor Mucedo*) is one of the commonest of Moulds, and is found growing on the most various substances. There is scarcely any decaying organic substance on which it may not be found. Let a piece of bread, for instance, be put in some damp place where it is protected from evaporation, and it is soon covered with a large crop of this Mould, aerial ascending branches of which develop so luxuriantly as to attain a height of 6 inches. It also occurs on bones kept in damp places and on horse droppings, where it grows very rapidly, since the spores introduced into the body along with the food are not only injured on their way through the digestive canal, but the warmth and moisture favour their growth. The Brown Mould grows in damp situations during the winter, even on papered walls, where it often spreads over the entire wall and rots the paper."

"*Puccinia graminis* is remarkable for a complicated alternation of generations. To complete the cycle of its development there are no fewer than five kinds of reproductive cells, which, however, only develop and give rise to new generations when they are conveyed to quite distinct host plants. Within the last century farmers, whose entire crops were often attacked and partly destroyed by this Rust of Wheat, have recognised some sort of connection between the Barberry (*Berberis vulgaris*) and this rust disease; and we are astonished to find that laws and orders had been issued as early as 1788 and later (1815), prohibiting the planting of the Barberry bush in the neighbourhood of corn fields, long before the fact had an incontestable scientific basis that there really exists the same connection between the Barberry and the Rust as between cause and effect. Modern microscopic investigation has succeeded in proving that connection. De Bary was the first to investigate the subject scientifically, and he has since been followed by a host of others."

"*Bacterium anthracis*.—Of all the Schizomycetes which cause the putrefaction of organic substances, or are the propagators of infectious diseases, none has been better investigated than the living contagium of splenic fever. It was first discovered in the year 1849 by Pollender, and since then has been observed by various physicians and naturalists. It is owing to the joint and hazardous labours of these various investigators, their numerous experiments and attempts at artificial culture in various infusions, that we are at present better informed concerning this Anthrax disease than about any other epidemic of men or animals, and possess a tolerably complete account of the whole history of the development of Anthrax. The researches upon this form may therefore be regarded as directly paving the way for, and as a typical example of, the numerous investigations still likely to be made in connection with contagious disease germs."

It is almost needless to add that the present edition is produced in a style suitable to the high reputation the publishers enjoy. It is stated that it will be completed in forty-two coloured plates with eighteen supplementary sheets. We recommend the work to the attention of all those employed in teaching botany.

THUNBERGIA HARRISII.—I have been so greatly struck with the fine, softly shaded, peach-coloured, trumpet-shaped flowers persistently produced on the admirable winter-flowering climber

in the effective stove of W. D. Hemphill, Esq., Oakville, near this town, that I send a line commending it to the notice of your readers. It contrasted admirably with the yellow maroon annual *Thunbergia alata*, and the brilliant purple crimson of the beautiful *Passiflora kermesina*. *Thunbergia Harrisii* has previously been mentioned with approval in the Journal, and I think it is worthy of the attention of those who desire to have attractive climbers at this season of the year.—W. J. M., *Clonmel*.



AT a general meeting of the ROYAL HORTICULTURAL SOCIETY, held on Tuesday last, the Rev. H. Harpur Crewe in the chair, the following candidates were duly elected Fellows of the Society—viz., Edward Amphlett, Major Carleton, Charles B. Farmer, Mrs. Gibbs, Henry T. Middlehurst, Edward A. Nevill, Hon. Edward Romilly, Lieut.-General Stock, Dr. Stocker, James W. Wallace, and Mrs. Henry W. Williams.

— MR. EDWARD MAWLEY informs us that the NATIONAL ROSE SOCIETY'S SHOW AT SHEFFIELD next year will be held on July 14th, instead of July the 17th, as previously announced, the latter date falling on a Sunday.

— THE extraordinarily MILD AND DRY WEATHER that has prevailed in the south of England during the past fortnight was succeeded by rain on Tuesday last, and the roads, formerly dry and dusty, were converted into mud and slush. For planting and land-working generally December has generally been most favourable, and the month has been an unusually busy one in both nurseries and gardens. The temperature has been exceedingly genial, and the songsters of the woods have been as merry as in spring, while Primroses, Violets, and Pansies are flowering freely in some localities. Those are wise who have taken the greatest possible advantage of the favourable circumstances for advancing garden work generally, as the future weather may be as marked for its inclemency as the past has been for its salubrity. In Scotland we learn that snow has fallen heavily, while the winter is so severe in America that several people have been frozen to death.

— To encourage the production of NEW FLORISTS' FLOWERS, some of the members of the Floral Committee of the Royal Horticultural Society, at the meeting on Tuesday last, proposed to raise a fund for the purpose of offering a prize of £5 at each meeting for the best new variety exhibited. The suggestion was generally approved, and several gentlemen signified their willingness to subscribe if the idea is adopted, which will entirely depend upon the financial support it receives.

— COMPLAINTS are frequently heard, but for which there is comparatively little occasion, about the difficulty of obtaining a good display of flowers during the last two months of the year. The fact is, by judicious selection, where the requisite means are at command for ordinary plant culture, nearly as satisfactory and effective a show of flowers can be obtained at this season as at any other, though not without a little additional care and attention. This was well shown in the CONSERVATORY AT EWELL CASTLE, the residence of A. W. Gadesden, Esq., where we noticed last week that Mr. Scutt, the experienced gardener, had provided as brilliant an array of flowers as could be expected or desired in December; Primulas, Chrysanthemums, Orchids, especially *Calanthes*, Poinsettias, and the charming *Euphorbia jacquiniæflora*, with many others, gracefully intermingled with Palms and Ferns, producing a display that could scarcely be excelled in the favoured spring months.

— IN the same house was an unusually fine specimen of the handsome *DENDROBIUM CHRYSANTHUM*. It was suspended from the roof in the centre of the house, and upon a growth 3 feet in length it bore about a hundred of its rich golden yellow flowers, that were, however, chiefly confined to the apical half of the growth. Another attractive Orchid, *Odontoglossum Insleayi* leopardinum, was represented by a plant bearing several large flowers, and in vigorous health.

— HOLLY BERRIES FOR CHRISTMAS DECORATION are not so abundant as usual in the neighbourhood of London, and the same complaint reaches us from other districts. The "Hingham Deanery Magazine," which circulates chiefly in a district of Norfolk, has this notice:—

"Oh reader! hast thou ever stood to see
The Holly tree?"

So bare of berries as it stands this year, not one dot of red to relieve the 'green winter of the Holly tree.' Our churches this Christmas will miss, too, the accustomed ivory of the *Laurus-tinus*, our houses the Mistletoe's great pearls. So few of even the hardiest shrubs and trees have blossomed, still fewer fruited. Our faith in next year's productiveness wanes; we grow more credulous—inclined to think that there may be some potency which we cannot fathom in certain numbers, and that so there will be little change for the better until 1881 completes the mystic round of seven unfertile seasons!"

— "I SEE," writes "J. R. S. C.," "that in the December number of the 'Entomologist' Mr. Gregson notes two curious facts concerning the GOOSEBERRY CATERPILLAR (*Abraxis grossulariata*). He collected some thousands of these, and found that about 25 per cent. were ichneumonized; also he observed that the autumn larvæ, that should have hibernated, were in one place he visited full fed in October and ready to turn to pupæ. This, however, must be an exceptional case: in Kent there are swarms of larvæ laid up for the winter in nooks and corners."

— AN African Marigold-like plant that is by no means common is *CLOMENOCOMA MONTANA*, though its bright orange-coloured flower-heads, produced at the present time, render it well worthy of attention. It succeeds under culture in pots, requiring a light turfy loam, and bears the flower-heads on long peduncles, which are thus well adapted for cutting. A cool stove or intermediate house is best suited to it, as a moderate heat is requisite to ensure vigorous growth and free flowering. It is a native of Guatemala, whence it was introduced to England nearly twenty years ago.

— WRITING to us on the mildness of the WEATHER IN LINCOLNSHIRE a correspondent remarks, "We shall soon have spring flowers out if it continues like this. Nay, already the Violets and Primroses are showing their welcome blooms, whilst there is still here and there a stray Rose bloom escaped from the severe weather of two or three weeks ago. We have had some of the most exhilarating December days I ever knew, so bright and clear, and yet mild, and such a freshness in the air; but it is colder now."

— OUR Clonmel correspondent sends us the following note upon the culture and hardiness of *SCHIZOSTYLIS COCCINEA*:—"It is a mistake to suppose the flowers, or advancing flower spike, of this brilliant late autumn and winter-flowering plant will endure many degrees of frost. I distinguish between the leaves and flower spikes. The latter succumbed to 4° of frost in the beginning of November, while the leaves are apparently unaffected though we had 10° of frost last week. Fortunately I had all the stronger-flowering clumps potted in October, and for the past six weeks they have been admired by every visitor—not even scarlet *Pelargoniums* are more intensely brilliant. It is this

system of growth I wish to commend. I have never seen them so robust or with such fine flowers grown inside. Two methods might be adopted—either to plant them out when they have flowered in a rich herbaceous border, or, if in moderately large pots, plunge them in the border, and towards flowering time supply some liquid manure. The latter system has the advantage that when bringing them inside for flowering the plants experience no check."

— THE peculiar spinose shrub *COLLETIA CRUCIATA* is ordinarily an object of curiosity rather than of admiration, but when flowering it is by no means unattractive. In the temperate house at Kew several small plants in pots are now bearing a profusion of their small white bell-shaped flowers in clusters on the upper portion of the branches, springing from just below the strange triangular spines that impart such a distinctive appearance to the plant.

— MR. HENRY C. OGLE, late gardener to Mrs. Okeden of Turnworth, has been appointed to the charge of the gardens of Mrs. Willis Fleming, Chilworth Manor, Romsey. MR. ALEXANDER SHEARER, who has had a long and successful term as gardener to three Marquises of Tweeddale, has left Yester, and has been succeeded by Mr. Brown, who has been for a considerable time foreman in the same gardens. Mr. Shearer's skill as a gardener, and the great experience he has had in land improvement, commend him for a further charge, which, we understand, he seeks, and is as able and willing to work as ever.

— IN those gardens where the plant stove is sufficiently lofty to accommodate it, the handsome Palm, *DIPLOTHEMIUM CAUDESCENS* is well worth a place; but it is useless attempting to grow it where there is not room for the magnificent leaves to fully develop. Further, as it is a native of Brazil, a high temperature is required, and an abundant supply of water during growth. The leaves are pinnate, 10 to 12 feet long; the pinnæ narrow, 18 inches to 2 feet in length, closely set, of a glossy green colour on the upper surface and silvery white beneath. The habit of the plant is also very graceful, the leaves rising from a short stem and slightly arching. A young specimen in the Palm stove at Kew is now very noticeable.

— AT the annual dinner of the BRADFORD FLORAL AND HORTICULTURAL SOCIETY it was stated by the Secretary, Mr. West, that the Society was prospering very satisfactorily, as the balance of £32 last year had been increased to £53 this, and they had determined in consequence to increase the value of the prizes and to encourage more competition in the open classes. The Exhibition this season was a great success in every way, and it is desired to render the next even more attractive.

— IT is almost needless to call attention to the beauty and usefulness of *LINUM TRIGYNUM* at this time of year, as the plant is now well known and appreciated in many gardens. But there is still room for extending its culture, and we noticed only last week that in two large establishments where plants for decoration are grown in numbers, amidst a wealth of flowers of many and brilliant shades there was nothing to supply the pleasing yellow hue that would have been so well afforded by a few specimens of this Flax. In another garden, however, it was employed very freely, chiefly small plants in 48-size pots arranged on the shelves of a cool stove; and in combination with the numerous attractive plants that may be had to adorn such a structure at this time of year, it produced as bright an effect as could be desired. Easy culture, quick growth, and a habit of flowering profusely in a young state, are recommendations of no light value.

— AN American contemporary has the following relative to the CHICAGO FRUIT TRADE:—"Practically the fruit season with

us extends from the 1st of April to the latter part of October, although some of the small fruits grown in the far South make their appearance here in February. The total trade of the past year in all fruits amounts to over sixteen million dollars, which is reported as equal to the preceding year, and double what it was some five or six years ago. The statistics gathered and compiled by Mr. Cowles, in addition to giving the quantities of the various kinds of fruit handled here, show whence they come. The fresh fruits consist of Peaches grown in Mississippi, Tennessee, Illinois, Michigan, western New York, Maryland, and Delaware; Pears from Illinois, Michigan, and New York; Plums from Tennessee, Mississippi, Illinois, Michigan, and New York; and Blackberries and other small fruits from the territory extending from Tennessee to Michigan."

— A VERY effective fine-foliaged plant is *ARTOCARPUS CANNONI* when well grown, and is very conspicuous in a group of stove plants arranged with Palms and others of similar elegant habit. The leaves are variable in form, some being deeply cut and others very slightly or almost trilobate; they are large, of a reddish crimson hue, which is particularly rich when seen in bright sunlight, a purple tinge being also observable. It is one of Mr. W. Bull's numerous introductions; is a native of the Society Islands, and was sent out from the Chelsea nursery about five years since.

— MR. ALEXANDER MACKENZIE has by request reported to the Epping Forest Committee of the Corporation on his suggestion that a SCHOOL OF FORESTRY should be established in connection with the Epping Forest, for which he says there are a combination of circumstances in connection with the Forest, all of which, it appears, tend to indicate a hope of success. There are about six thousand acres of land, the improvement and planting of which would form the best possible groundwork for the practical training of the foresters in the future. At the present time few of the woodlands and forests belonging to the English aristocracy are managed with either economy or skill, which would be no longer the case if such a school as is now suggested were in existence in England. There is at present an advertisement by the Indian Office for the selection of five young men, "if as many are found qualified," to be trained in France for the Indian Forest service. Instead of the present system of educating Indian foresters Mr. Mackenzie suggests that candidates be selected from the middle classes, the sons of farmers, foresters, and such practical men; they should have received a fair education and possess a little practical knowledge of soils, trees, and botany; their training at the School of Forestry should include practical forestry, mathematics, engineering, and architecture to a limited extent, surveying, levelling, and land-measuring, book-keeping and geology, also they should have facilities for acquiring at their option Latin, French, and German. The course of study should extend over four years, the first two to be spent at Epping Forest, the third year on the New Forest, and the fourth year at Windsor, where may be seen the full development of the principles commenced by the student at Epping. Mr. Mackenzie urges the Committee to secure the powerful influence of the Corporation in inducing the Government to assist in the establishment of such an institution. The example has been set by America, where a Bill has been introduced to the Senate for the establishment of such a school, entirely at the cost of the country; the want has also been recognised and supplied by most of the States on the Continent.—(*City Press*.)

ROYAL HORTICULTURAL SOCIETY.

DECEMBER 14TH.

THE concluding meeting of the year was well attended, and a very good display of vegetables, fruit, and plants was provided.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Mr. Sage, The Gardens, Ashridge, sent specimens of the late-keeping Grapes

Gros Colman and Alicante very finely grown. The Alicante was very well flavoured, and was put in comparison with Alnwick Seedling grown by Mr. Wildsmith at Heckfield. The latter was thoroughly ripened and somewhat shrivelled, of excellent flavour, and with more flavour than Alicante, and both were superior to Gros Colman. The Gros Colman exhibited by Mr. Sage were beautifully grown and unusually thin-skinned. Mr. Woodbridge of Syon House Gardens exhibited a dish of Lady Downe's, of good flavour but not quite ripe. A letter of thanks was awarded to each of those gentlemen.

Mr. Allan, The Gardens, Gunton Park, sent two bunches of a seedling Grape raised by Mr. Speed of Chatsworth. It is a long tapering bunch like Madresfield Court, and the berries are long oval like that variety. The skin is reddish black, and would probably be quite black if grown in heat. The flavour was not of high merit, and it was considered not superior to others in cultivation. It was thought that the flavour might be improved if grown in heat. Mr. Miles, The Gardens, Wycombe Abbey, exhibited two fruits of the Pine Apple Lord Carington, which had been certificated on a former occasion. Messrs. Veitch & Sons of Chelsea exhibited fruit of Diospyros Kaki var. Schi-Tse grown in the south of France. The fruit is the size of an Orange and of a rich golden colour. It is filled with a sweet, agreeable, gelatinous pulp resembling a preserve. A letter of thanks was awarded. Mr. W. Farren, gardener, How House, Cambridge, sent a seedling Apple called Cantab, which was not of high quality. Messrs. James Dickson & Son, Chester, sent a seedling Apple, which was too far gone to enable the Committee to form an opinion of it. Mr. Jacques, gardener at Davenham Bank, Great Malvern, sent a seedling raised from an American Apple, but it was not possessed of any great merit.

Mr. Gilbert, The Gardens, Burghley, sent fruit of a seedling Cucumber called Montrose Seedling, a very pretty variety, handsomely shaped and not too large. It is a cross between Syon House and Kenyon's Freebearer, and said to be a free bearer and excellent for winter use. The Committee wished to see it again in February or March. Mr. W. Hinds, The Gardens, Canford Manor, Dorset, sent a fine dish of Tomato Trophy, to which a cultural commendation was awarded.

Philip Crowley, Esq., Waddon House, Croydon, exhibited two very large and handsome Citrons grown on a tree against a back wall of an intermediate house. The two fruits weighed 6½ lbs., and the large one 4¾ lbs., and a cultural commendation was awarded to them. Mr. Crowley also exhibited marmalade made from the fruit, which was highly appreciated; also some of the small fruit preserved whole, which formed an excellent preserve.

L. A. Killick, Esq., Mount Pleasant, Langley, Maidstone, exhibited a handsome collection of Apples representing a hundred varieties, for which a silver-gilt medal was recommended.

FLORAL COMMITTEE.—Dr. Denny in the chair. Cyclamens were well shown at this meeting. Messrs. J. Veitch & Sons, Chelsea, contributed a group of Orchids and other plants of considerable beauty and interest; that constituted the great feature of the meeting, as it included several handsome rarities and novelties. The charming little yellow-flowered *Oncidium cheiroporum* was in good form with eight panicles of flowers. *Oncidium Forbesii* had two fine panicles of its large pale chocolate-coloured flowers with an irregular yellow margin. The hybrid *Chysis Chelsoni*, a cross between *C. bracteata* and *C. aurea*, had a spike of compact cinnamon-tinted flowers, the upper portion of the sepals and petals being of a reddish hue, and the labellum barred inside with crimson. The chaste *Lycaste Skinneri alba* had one pure white flower of great size. *Barkeria Lindleyana* was very attractive with three good spikes of its bright rosy purple flowers. The peculiar *Mormodes Wendlandii* had a long spike of pale yellow flowers, of which the labellum was remarkable for its strange form. *Odontoglossum Andersonianum*, *O. Roezlii*, *O. gloriosum*, *Trichopilia rostrata*, the beautiful hybrid *Cattleya Marstoniana*, and several other Orchids were especially notable. *Acanthophippium Curtisi*, an extremely rare Orchid with rosy flowers, deserves notice, together with *Cypripedium tessellatum*, an attractive hybrid between *C. barbatum* and *C. concolor*, may also be included. Several other plants, for which first-class certificates were awarded, are described in another portion of the report. A very fine bank of Cyclamens was also staged, the plants being in excellent condition, the flowers numerous and large. For the Orchids a vote of thanks was accorded, and a cultural commendation for the Cyclamens.

Mr. H. B. Smith, Ealing Dean Nursery, had a remarkably handsome collection of Cyclamens in most vigorous health, with a great abundance of large flowers. The white flowers were particularly pure and of fine substance. A double white variety was shown, in which the lobes of the corolla were increased in number, seemingly by the addition of another whorl. The very large-flowered *picturatum* and an admirable red variety were exhibited in similarly satisfactory condition. A cultural commendation was freely accorded for this exhibit. Mr. J. Wiggins, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, sent specimens of Sutton's Ruby King and Williams' Coccinea Primulas, with two seedlings named respectively Crimson Gem and Purple Gem, both very striking in colour and with flowers of good size. In habit they resembled Ruby King. A specimen of *Oxalis Ortgiesii* was exhibited by Mr. C. Green, gardener to Sir G. Macleay, Pendell Court, Bletchingley. It is a peculiar species with dull green trifoliate leaves, each leaflet being deeply cut at the apex and purple on the under surface. The flowers are pale

yellow, and are borne on a divided spike at the extremity of a long peduncle. A vote of thanks was accorded to Mr. Green for the plant. Mr. H. Cannell, Swanley, had stands of Zonal Pelargonium and *Salvia* blooms in their customary excellent condition. *Salvia Betheli* was especially fine. The Pelargoniums *Beauté de Lyon* and the white variety "I've Got It" were noteworthy. A group of Primulas was also exhibited, including several new varieties of great excellence. Swanley Red was particularly brilliant; another of a deep salmon tint, and several lighter-coloured varieties were distinct and pretty. Robert White, Esq., Old Road, Lee, sent a Primula named Pentland. It was of moderately good habit, and had large crimson flowers. Mr. W. Pratt, gardener to Viscount Hill, Hawkstone, Shrewsbury, was accorded a vote of thanks for some Poinsettia heads and Chrysanthemum blooms, the former being especially good. Mr. E. Hillier, nurseryman, Winchester, exhibited good specimens of his attractive double Primula Annie Hillier. The plants were very dwarf and compact in habit, the flowers being of good form, very full, white suffused with pink, and slightly fringed. The flowers were also very freely produced.

Mr. W. Iggulden, The Gardens, Orsett Hall, Romford, sent specimens of his *Begonia semperflorens grandiflora*, which were in remarkably good condition, healthy, and flowering profusely. Messrs. Smith & Lark, Ashford and Kensington, were accorded a vote of thanks for a collection of Cyclamens in small pots and well flowered, also some very good examples of Poinsettias in 48-sized pots, and varying in height from a foot to 18 inches. The heads were not of unusual size, but the bracts were very highly coloured. A few wreaths of dried flowers were also sent. A vote of thanks was accorded to Mr. W. Allan, gardener to Lord Suffield, Gunton Park, Norwich, for fine growths of *Lapageria rosea* about a yard long, and from fourteen to twenty flowers each. Mr. Allan also sent some Neapolitan Violets of unusual size that attracted much attention. Votes of thanks were also accorded to Sir Trevor Lawrence, Bart., for cut blooms of Orchids, and Mr. Boller for a group of succulent plants. From the Society's Gardens a large number of handsome plants was brought, including Begonias, Primulas, Ericas, Mignonette, Abutilons, Pelargoniums, Poinsettias, and Hellebores. The latter were magnificent, the variety being *Helleborus niger maximus*, which has large white flowers that contrast finely with the deep green leaves. The plants were in baskets, in which they had been placed when lifted about a month ago, and arranged under glass.

First-class certificates were awarded for the following plants:—

Jasminum gracillimum (Veitch).—A remarkably handsome plant of free growth, with long slender branches bearing large terminal and axillary heads of pure white flowers. The individual flowers are an inch in diameter, with seven to nine narrow lobes. The fragrance is very powerful, and to some persons very agreeable. The leaves are rather small, elliptical, and bright green in colour. The plant is altogether a great acquisition, and is quite distinct from *J. pubescens*, under which name it was exhibited on the authority of the Kew officials; but Sir J. D. Hooker, upon subsequent examination, has determined that it may be distinguished from that species by the number of the corolla lobes and the gracefulness of the habit, which character has led to the adoption of the name given above. It is said to be one of the plants introduced by Mr. F. W. Burbidge when travelling in the tropics for the Chelsea firm. This plant is certain to become highly popular.

Croton Hawkeri (Veitch).—A handsome form, with lanceolate leaves 6 to 8 inches long and 1 to 1½ inch broad, clear pale yellow in the centre, with a bright green apex and a narrow border extending half way to the base. The habit is dwarf and compact, and the variety is one of the most distinct in cultivation.

Croton Cronstadti (Veitch).—Another very distinct and pretty Croton, with narrow pendulous spirally twisted leaves, very deep bright yellow near the base, and becoming dark green, with streaks of crimson towards the tip. The pendulous character of the foliage and the bright colours render the plant very attractive.

Odontoglossum anceps (Veitch).—A distinct and handsome Orchid, with a long spike bearing about four flowers on long stout peduncles. The sepals are narrow, of a reddish chocolate colour, the petals being a pale greenish tint, spotted and barred with chocolate.

Odontoglossum blandum (Veitch).—A dwarf and pretty Orchid, with spikes of nine or ten small flowers, cream-coloured, spotted with bright chocolate. The labellum is somewhat shaped like an arrow-head, white and spotted with purple. The sepals and petals are acute and incurved.

Mormodes Wendlandii (Veitch).—A peculiar Orchid, with a spike about 2 or 3 feet long, bearing several large pale yellow flowers near the summit. The structure of the flower is very remarkable, the lip being especially peculiar, and aptly described by the Rev. G. Henslow as resembling a "cocked hat."

Primula sinensis Swanley Red (Cannell).—A useful variety of compact habit, and good truss of large fimbriated intensely rich crimson flowers. The yellow eye is very marked, and serves to relieve the brilliant colour of the limb.

Primula sinensis Purple Gem (Little).—A variety of dwarf habit in the way of Ruby King. The trusses are large, low in the foliage, and of a fine purplish crimson colour.

Primula sinensis Annie Hillier (Hillier).—A double variety resembling some of Mr. Gilbert's strain in general habit. Flowers large,

very full, of good form, slightly fringed; white suffused with pink. The trusses are of good size and very freely produced.

SCIENTIFIC COMMITTEE.—*Galls on Quercus pseudo-coccifera*.—Large galls were exhibited by Mr. McLachlan from Portugal.

Chrysanthemum Sport.—Dr. Masters exhibited a flower of which one half was pale pink, and known as Mrs. Dixon; the other half was yellow, and called Mrs. Rundle. He also exhibited a drawing of a proliferous spermatoce from Dr. Muller of Australia.—[We print this paragraph as we received it; but there is evidently a mistake on the part of someone, for Mrs. Dixon *Chrysanthemum* is yellow and Mrs. George Rundle white.]

Mr. W. G. Smith exhibited specimens of Vine leaves attacked by *Peronospora viticolor*, which appears to be rapidly increasing in Spain and the south of France.

Culture of Coffee at Mysore.—A communication was read from Col. Puckle upon the culture of Coffee at Mysore, in which the author described the different methods of cultivation and processes adopted for preparing the fruit for the market. He asked for scientific opinion as to the relative advantages of plucking Coffee green or ripe, and as to the desirability of removing the first crops, and as to the choice of berries for the cultivation of seed.

LECTURE.—The Rev. George Henslow first called attention to *Mormodes Wendlandi*, exhibited by Messrs. Veitch, the remarkable

structure of the flowers of which genus has been described by Mr. Darwin ("Fertilisation of Orchids," p. 249), and of which the lecturer gave details. Poinsettias, *Euphorbia jacquiniæflora*, and the Strawberry Cape Everlasting furnished good examples of the power of bracts to assume the attractive functions of and often strongly mimic true corollas. This was also the case with *Darwinia tulipifera*, species of *Cornus*, &c., in which it would be difficult, without examination, not to suppose the inflorescences were true flowers. Primulas also illustrated a similar change only in the calyx, which sometimes became petaloid, as in hose-in-hose varieties. This is sometimes mimicked by an extra corolla called a "catacorolla," the calyx remaining normal; or the calyx may retrograde and assume a foliaceous aspect, when such a monstrosity is called "Jack-in-the-Green." The "heterostyled" and "homostyled" conditions of Primulas were alluded to in connection with processes of fertilisation, in which the pollen from the "thrum-eyed" or short-styled form should be conveyed to the stigma of the "pin-eyed" or long-styled form. When homostyled the stamens and pistil were of equal length, and the plants became self-fertilising, a condition apparently not unfrequently obtained in the cultivated forms of *P. sinensis*, and which is normally the case in certain other species.

SPECIAL PRIZES FOR VEGETABLES.

Messrs. James Carter & Co., High Holborn, offered six prizes for collections of vegetables, there being no restriction as to varieties

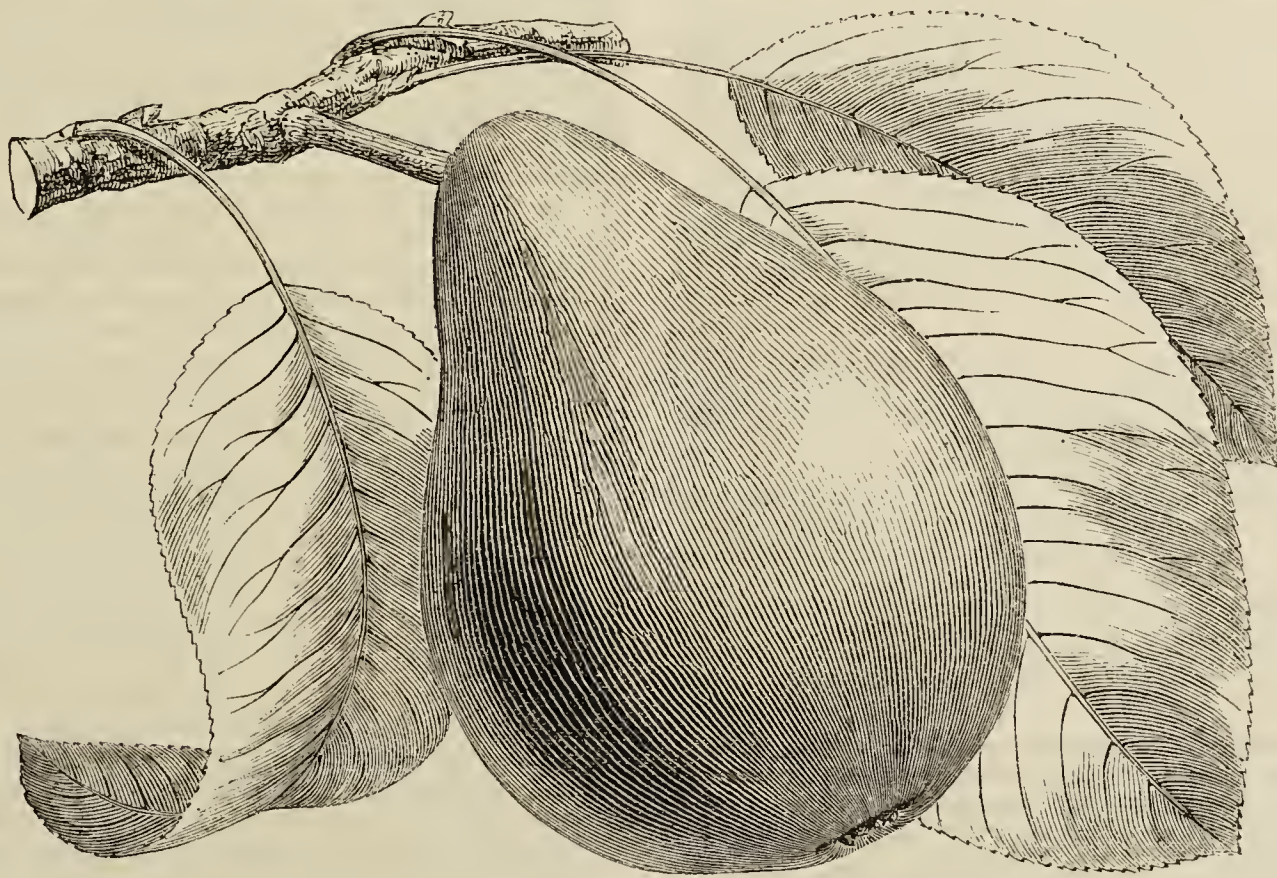


Fig. 100.—PEAR FERTILITY.

Twelve dishes were stipulated for, to be composed as follows:—Twelve Onions, three sticks of Celery, twelve Carrots, six Leeks, twelve Turnips, fifty Brussels Sprouts, twelve Tomatoes, three Red Beet, three Cauliflowers, twelve kidney Potatoes, twelve Parsnips, and twelve round Potatoes. The prizes were respectively £5, £3, £1 10s., £1, 10s., and 7s. 6d. Mr. J. Miles, gardener to Lord Carington, Wycombe Abbey, Bucks, obtained the chief prize with a handsome collection including clean, even, and well-grown examples of the following varieties:—Carentan Leeks, Stamfordian Tomatoes, very even; Carter's Perfection Beet, Autumn Giant Cauliflowers, Carter's Schoolmaster and Improved Magnum Bonum Potatoes, Carter's Perfection Brussels Sprouts, Carter's Maltese Parsnip, Carter's Naseby Mammoth Onions, Carter's Jersey Lily Turnip, Long Red Surrey Carrot, and Leicester Red Celery. The second prize was awarded to Mr. Phillips, gardener to Capt. Jackson, The Deodars, Meopham, Kent, who staged a very creditable collection. His Musselburgh Leeks, Carter's Perfection Brussels Sprouts, Naseby Mammoth Onion, and Autumn Giant Cauliflower, and Carter's Incomparable Crimson Celery were particularly fine. Mr. W. Iggulden, The Gardens, Orsett Hall, Romford, followed very closely with neat examples of the principal varieties. Mr. Austin, The Gardens, Ashton Court, Bristol, was fourth. Mr. J. Roberts, The Gardens, Gunnersbury Park, Acton, was fifth; and Mr. J. Hains, gardener to Earl of Radnor, Coleshill House, Highworth, Berks, was sixth. There were nine exhibitors, and all

the collections were of good quality. Messrs. Carter exhibited a large number of Potatoes, comprising about sixty-six varieties, and examples of Scotch Champion, Snowflake, and Wormleighton's Seedling, together with examples of Reading, Nuneham Park, Bedfordshire Champion, and Banbury Onions.

PEAR FERTILITY.

THIS is one of Mr. Rivers' seedlings. As its name implies, the tree is very productive, and it is thought the variety will become serviceable as a market Pear. The following figure and description are taken from the "Gardeners' Year-Book" that is now being published:—

"This is a very handsome, a very beautiful, and a very excellent Pear. It is even and regular in shape, obovate, and terminating abruptly towards the eye, near which it has a suddenly contracted waist. Skin entirely covered with a bright cinnamon coat of russet, which has an orange tinge on the side exposed to the sun. Eye open, with short incurved segments, and set even with the surface. Stalk three-quarters of an inch long, stout, and inserted obliquely to the axis of the fruit without depression. Flesh half melting or crackling, very juicy, sweet, and with a

rich and highly perfumed flavour similar to that of Williams' Bon Chrétien much subdued.

"A very excellent Pear, with a rich and refreshing juice, which is sugary, acidulous, and clean on the palate."

CURRENT TOPICS.

SAWDUST FOR PROPAGATING.—I was much pleased in reading Mr. D. Thomson's notes on this subject at page 500. Sawdust is a cheap, plentiful, and easily procured material in town and country, and for these reasons the information respecting it is valuable and acceptable. Here cartloads of it are burned every month, but after this I shall try some of it for propagating. Perhaps some others besides myself may, however, be wondering how the young roots get on when they are shifted out of the sawdust into the loam. I have rooted cuttings in sand and cocoanut fibre refuse, and the roots formed were both numerous and long, but it always took such roots much longer to obtain proper hold of the soil when potted than those in loam, leaf soil, and sand. Perhaps Mr. Thomson would kindly say if that is the case with sawdust, if the dust is shaken quite away from the roots before potting, and the best way to perform the last operation without check?

GRAPES WITHOUT FIRE HEAT.—I think this may now be considered an annual subject for Grape-growers to write about, and it is to be hoped this may cause many to experiment for themselves on the matter. I am of opinion that if growers would use less fire heat in their vineries during June, July, August, and September than they are in the habit of doing, they would be well pleased with the results. These are the months when the majority of Vines are in full growth; but keeping the Grapes afterwards is a different thing, although Mr. S. Castle (page 499) makes this his chief objection to growing Grapes without fire heat. It is astonishing how well all Grapes and Vines succeed during the four months named without any fire heat; but everyone who has had experience in keeping Grapes in November, December, and onwards must know that frost and damp cannot be kept away without heat of some kind. For this reason no good glass house should be erected without the means of heating it, artificial heat only to be employed in cases of necessity, which will certainly not be through the best months of the year.

GARDEN REFUSE.—Mr. Jggulden has named many ways of employing this with advantage, but he has omitted the most important at this season—that is, the best way to dispose of fruit tree and evergreen bush prunings, now so plentiful. If Mr. Jggulden and others would make these into heaps and cover them with old turf parings, weeds, and sweepings, and then light a fire in the centre of the heap, there would be no occasion to wait for a year or more, as the burning at once converts them into better manure for all purposes than would be the case in any other way.

BRUSSELS SPROUTS.—"To produce the best of Sprouts, ought the crown of the plant to be cut out or not!" asks "G. O. S." on page 503. It may be briefly stated that if the most is desired to be made of Sprouts never take the points out. If the crown is cut before the plants are fully grown it stops their growth to a considerable extent, and if the same is done when full-grown it will cause the side sprouts to start earlier into growth and flower in spring than they would otherwise do. I have never seen any advantage follow taking the crown off before all the side sprouts were gathered.

MELONS AND BOTTOM HEAT.—I know it will occur to some of your readers in reading the remarks of Mr. Crump (page 509) that his experience with bottom heat for Melons falls short of theirs. He does not believe the cold-frame treatment suitable for producing good Melons, because he says he has never met with an example worthy of the name grown under such conditions. This is not very encouraging to the thousands who have no other means of growing Melons than in frames. But that good Melons, both in size and flavour, may be grown in such frames I have had many proofs. I know of no one equal to Mr. Pettigrew of Cardiff in Melon culture. His crops are annually very fine, and dozens of his best fruits are grown in frames without top or bottom heat artificially afforded. My practice agrees with this, as I have been awarded prizes at some of the best metropolitan fruit shows so late in the season as the last day in September for Melons cut out of a two-light frame where they had no artificial heat for two months previously.

TRAPPING BULLFINCHES.—The destructiveness of these birds is admitted, and Mr. Hiam has proposed an alternative remedy to the gun. Bullfinches are no doubt as much valued in towns as they are dreaded in fruit gardens, and the suggestion referred to

"to turn them into cash" is worthy of attention both on the score of "economy and humanity."—A KITCHEN GARDENER.



KITCHEN GARDEN.

WHERE Peas have not been sown outside preparation should now be made for sowing under glass either in cold pits, a late Peach house, or orchard house. The old-fashioned horseshoe draining tiles 3 inches in diameter, or wooden troughs 3 or 4 inches in diameter and depth, may be employed, but where turves can be obtained those cut about 3 inches thick and divided into strips 4 inches wide are best adapted for the purpose. The strips of turf should have a groove cut down the centre half their width and depth on the root side, the seed being sown and covered with fine soil. After the young plants have made some growth they must have light airy positions and be treated so as to insure sturdy growth, and when 4 to 6 inches high they should be planted in drills outdoors in a warm situation. If intended to be planted at the foot of south walls such varieties as Little Gem, Blue Peter, Early Premium Gem, and Unique should be chosen, whilst for the border such as William I., First and Best, and Harbinger, the last-named being a week in advance of the others in commencing bearing. A sowing of Broad Beans for early crop may now be made in turves; the variety Beck's Gem is a good one, and may be planted at the base of walls for a very early crop. If required for exhibition Seville Longpod or Carter's Leviathan may be treated similarly, but will not be suitable for transferring to a position near walls from its greater height.

If the weather be open make a sowing of Peas outside to supplement those sown in November, affording a sheltered position and light rich soil. The dwarf varieties already alluded to are suitable for sowing at the base of walls, and with care will yield very acceptable dishes of Peas some days in advance of those which are more exposed. Early Peas must be carefully protected from birds. Dust the plants while damp with lime or soot, and place sticks to them; small twigs of Spruce, or the leafy twigs of young Beech and Hornbeam, are suitable. A sowing of Broad Beans should also be made outside.

Keep the ground about crops of Cabbages, Lettuces, Onions, and Spinach free from weeds, stirring it occasionally, and rendering plants firm that have been disturbed by frost, removing all decayed leaves, and filling any blanks with plants from the reserve beds. Spinach should be gathered carefully, picking the full-sized leaves only, and allowing the plants plenty of room. Lettuces and other crops subject to the attacks of slugs must be dusted occasionally with quicklime.

To be prepared for frost it is advisable to have a supply of Turnips, Jerusalem Artichokes, and Horseradish in store, also Seakale for forcing. A complete clearing should be made of fallen leaves, and all available surfaces be turned up; even those beneath fruit trees may be pointed over to destroy surface weeds and to produce a neat appearance. Asparagus beds should receive a dressing about 3 inches thick of thoroughly decomposed manure, which should be covered with a similar thickness of soil from the alleys.

FRUIT HOUSES.

Vines.—When the buds in the early vinery are swelling the rods should be examined, especially young Vines; and if the upper part or terminals are taking the lead they must be brought down to a horizontal position, syringing the canes frequently until the lower buds have started, when the rods should be secured in position. Do not disbud hastily, but allow the breaks to advance until the best show of fruit can be discerned, and then disbud gradually. The extra foliage will encourage root-action. Turn the fermenting materials over frequently and add fresh from the reserve, maintaining the heat at about 80°. The night temperature of the house should not exceed 60°, and in severe weather it may fall to 55°. Ventilate a little every day, the temperature ranging from 60° to 65° artificially when the buds are growing, increasing to 70° or 75° with sun heat. It will be

advantageous to cover outside borders with leaves 1 to 2 feet in depth, make them firm, and cover with shutters to throw off rain and snow. The earliest-started Vines in pots will require disbudding, reserving those growths with the most promising bunches, stopping two joints beyond the bunch, allowing more if there is sufficient space for the exposure of the foliage to the light. The laterals below the bunches may be rubbed off, but those from the same joint as well as those above may be allowed more latitude, or if likely to crowd the principal foliage stop them at the first leaf. The temperature by day should be 65° artificially and 70° to 75° with sun heat, and in mild weather it must not exceed 60° at night, whilst in severe weather a few degrees lower may be permitted. If the pots are surrounded with fermenting materials replenish them as necessary to maintain the heat about the pots steady at 70° to 75°. Damp the house and Vines in the morning and early afternoon, and if the weather necessitates sharp firing moisture must be distributed about the house, but not on the Vines, about 8 P.M. When the flowers are showing 70° to 75° will be required, not falling below 65° at night. Assist the setting by lightly passing a camel's-hair brush over the bunches. Afford water as necessary, alternating with liquid manure. Have succession houses and Vines that are intended to be started early in the coming year thoroughly prepared, and repeatedly water inside borders so as to have them in a moist condition. If the internal borders have not been top-dressed lose no time in doing so, removing the loose surface soil, and apply a dressing of turfy loam with a sprinkling of crushed bones. Push forward the pruning of late summer and autumn Vines as soon as the leaves have fallen, cleanse the house, and give the roots the needful attention in top-dressing. If this work is likely to be delayed by Grapes still hanging cut and bottle them, for nothing is of such importance as affording a long and complete rest, which is often very much interfered with by the plants arranged in vineries, for a well-ventilated house is necessary day and night in all weather, except when frost prevails. Plants requiring more heat should be excluded from vineries.

Figs.—To have ripe Figs at the early part of May the trees should be started at once. Trees in pots are preferable to those which are permanently planted out, as at this early season a slight warmth at the roots is very beneficial, providing it be regular and does not exceed 70° at the commencement, as more than this is calculated to produce growth too rapidly. The pots should be placed on pedestals of brickwork of the requisite height, and the bed must then be filled with Oak or Beech leaves and firmly placed together, bringing them up around the pots, taking care that the heat about the pots is not allowed to exceed 70° or 75° at the base. If the plants are small the brick pedestals may be dispensed with, but be careful not to plunge the pots deeply in the bed if the temperature exceeds 70°. If the soil in the pots has become dry immerse them in water until it is well moistened. Commence forcing with a night temperature of 50° and 55° in the daytime, allowing an advance of 5° to 10° more from sun heat. Keep the atmosphere generally moist by damping available surfaces frequently, and syringe the trees twice a day. It is of the utmost importance that the trees have a position where they will be exposed to light. The house in which the trees are planted out and intended to be forced next month for affording ripe Figs early in June, must now be attended to in dressing and securing them to the trellis, ventilating freely until forcing commences, except during frost.

Cucumbers.—The winter plants are showing plenty of fruit, and unless they are extra strong fully two-thirds of it should be removed, as nothing tends so much to weaken them as allowing too free bearing in the early stages. Remove all male blossoms and tendrils, affording a moderate earthing to the roots of previously warmed soil, pressing it down rather firmly. Be moderate in the supplies of water to the roots for the present, a fair supply twice a week will be sufficient. Plants growing in tubs or boxes will require it more frequently. Thin out the growth as necessary to admit light, and encourage fresh growth in the autumn. Plant so as to maintain a continuous supply, but for the next six weeks be careful in stopping. Keep the glass clean so as to admit all the light possible.

PLANT HOUSES.

Stove.—Heat for the roots of plants is not so much advocated now as it was, yet it still has its advocates, for many plants, though not

absolutely needing bottom heat, are benefited by it at some stage of their growth, as in the case of *Eucharis amazonica* and others that have been repotted, and it is particularly valuable for plants that produce few roots or lose them at the most critical stage of their growth—namely, when advanced for flowering, as is often the case with *Poinsettias* and *Euphorbias*. To accelerate the flowering of plants at particular times, or to induce growth in order to secure a tendency to earlier flowering, bottom heat is indispensable. No other means exist of producing so genial a condition of the atmosphere as that of a good bed of fermenting materials, as tan or Oak leaves; a bed 4 feet in depth of those will maintain a good heat for a long time, and materially assist the heating power, especially on cold nights. Where hot-water pipes exist to furnish bottom heat cocoa-nut fibre refuse is generally employed as the plunging medium, and is better than sawdust from not being so liable to foster fungus. The heat from passing through this moisture-laden material tends to maintain a genial atmosphere, and, though not equalling a bed of fermenting materials in that respect, is more enduring and cleanly. To render assistance in this way no time should be lost in preparing the material, giving the house a thorough cleaning, well washing the woodwork and glass. Where means do not exist of affording bottom heat, sufficient piping should be available for maintaining the requisite temperature without constantly having to heat them highly, as nothing induces such an unsatisfactory condition in plants. No economy is so false as little piping, which necessitates keeping the water in the pipes near boiling point when the weather is at all severe.

Light is at this time of year of great importance to plants, and everything should be done to favour its admittance. Roof climbers are usually left until the early part of the year before thinning and regulating the growths, but if it was not attended to in autumn all superfluous growths should now be removed. Some are, however, now in great beauty, such as *Ipomæa Horsfalliæ*, *Bougainvillea glabra*, *Manettia bicolor*, *M. micans*, several *Passifloras*, particularly *P. Madonna*, *P. calycina*, and *P. kermesina*; those with others of an evergreen character should not be disturbed in such manner as will interfere with their flowering. Deciduous climbers will require to be dry at the root, but not so much so as to cause the wood to shrivel; and although the evergreen species are the better for being kept rather dry, it must not be entirely withheld, as that would cause the young shoots and leaves to flag to the serious injury of the plant. Many stove plants flowering at this season do best in an intermediate temperature, lasting much longer and bearing removal for decorative purposes better than those grown in a higher temperature. *Serico-graphis*, *Eranthemums*, *Centropogons*, *Thyracanthus*, *Euphorbia jacquiniæflora*, *Begonias*, *Gesnera exoniensis*, *zebrina* and *splendens*, and the attractive *Epiphyllums*, all do well in a temperature of 55° to 60°, and to have them in the brightest colour the plants must be so placed as to have their heads near to the glass. For forwarding *Richardias* and continuing *Bouvardias* in flower similar conditions as to heat and light are absolutely necessary.

FLOWER GARDEN.

When the leaves have all fallen a thorough cleaning should at once be commenced. The lawn must be kept free from wormcasts by sweeping and rolling, also similarly attending to the walks. Thin out and transplant trees and shrubs where too thick, and the dressing of the borders should be proceeded with as the weather and opportunity offers. Bed and borders edged with Box must have any gaps filled up, and where the edgings have become too large they may now be taken up and relaid. Box does not succeed in all soils, often having a rusty brown colour, which usually arises, except in very sandy soils, from a deficiency of calcareous matter; hence in relaying the colour may be improved by working in a good quantity of fine chalk. Where Box does well it is unsurpassed as an edging plant.

There is always great risk in digging borders of herbaceous plants at this season, unless the position of all plants and bulbs are clearly indicated by stout labels; and although a peg in the case of bulbs and such plants is considered sufficient, yet much is added to the interest of a garden by having them properly named. The borders should now have a good mulching of half-decayed manure, so as to enrich the soil and form a suitable protection against the severity of

the weather. Christmas Roses are greatly appreciated and in request for cutting, and the flowers are much finer and purer in colour when covered with a handglass, which where forthcoming should be placed over the plants at once. Plants of doubtful hardiness, such as Bambusas, Pampas Grass, New Zealand Flax, Chamærops Fortunei, and others of similar character, must be afforded the necessary protection before severe weather; some fresh leaves and bracken with a few Laurel or Spruce branches are generally effective. Plants against walls, such as Ceanothuses and Magnolias, may be protected by tacking a double mat in front of them on the approach of severe weather.

PLANT HOUSES.

Greenhouse.—Admit air freely whenever the temperature exceeds 45°, and employ fire only to maintain the heat at about 40° at night in severe weather, and between that and 45° in the daytime. Where, however, there are no Heaths, but the collection is composed of the freer-growing hardwoods as well as softwooded plants, the temperature may be kept at 40° to 45° at night, and 45° to 50° in the day artificially. Keep a strict look-out for aphides and fumigate upon their first appearance. Heaths cannot be kept too cool if frost is excluded, and in mild weather too much air cannot be admitted. Lachenalias should have positions near the glass, and if supplied with weak liquid manure they will grow and flower better. Attend to the training of *Tropæolum Jarratti*, *T. tricolorum*, and others of that section, so as to secure the even covering of the trellis, and assign them light airy positions, keeping the soil moist. Mignonette must only have water to keep the plants from flagging, and should occupy positions where they will receive plenty of light and air when the weather is favourable. *Vallota purpurea* will be advancing in growth and must not lack water. Some keep this plant too dry in winter, causing the destruction of the old foliage, and are disappointed at flowering time. Any plants requiring larger pots may now be shifted, and if increase be desired they may be divided, preserving as many roots to each portion as possible. Do not remove the offsets as is often done; they will not interfere with the larger bulbs, soon attaining to a flowering size, and pots with a number of flower scapes are more effective than those with single plants. The *Vallota* succeeds well in turfy loam and requires good drainage, as during growth the watering must be copious, affording a light position. Let *Cinerarias* advanced for flowering be assisted with weak liquid manure, also *Cyclamens* and *Primulas* whenever water is required, giving it only when necessary, and then thoroughly, avoiding as much as possible pouring it on the neck or collar of the plants. Keep Show and Fancy *Pelargoniums* near to the glass, and where free ventilation can be given when the weather is favourable, affording water very sparingly at present.

Such plants as *Acacias* and other New Holland plants, being of stronger growth than the fibrous-rooted Cape plants, will require more copious supplies of water whenever they become dry. *Camellias* are moisture-loving plants, and must not be neglected, as if only once allowed to become too dry at the roots it may occasion the falling of the buds. *Azaleas* also require careful attention in the supply of water.

TRADE CATALOGUES RECEIVED.

Chr. Lorenz, Erfurt, Germany.—*Catalogue of Flower and Vegetable Seeds.*

Richard Dean, Ealing.—*Catalogue of Florists' Flowers and Herbaceous Plants.*

William Etherington, The Gardens, Manor House, Swanscombe, Kent.—*Descriptive List of Chrysanthemums.*



Address (R. S. C.).—If you write to Messrs. Richard Smith & Co., Worcester, you will probably obtain the information you require.

Strawberry Culture (*Civis Britannicus, Bruges*).—There are two small manuals on the cultivation of this fruit that may be of service to you; one may be had, price 1s. 6d., from Mr. Hinds, The Gardens, Canford Manor, Wimborne,

Dorset; the other from Mr. Lovel, Weaverthorpe, York, price 1s. Both manuals contain practical and useful information.

Labels for Wall Trees (*V. C. B.*).—As we have frequently stated, we do not recommend tradesmen or nurserymen; it would be most invidious and unfair for us to do so, as you would feel if you were a vendor instead of a purchaser, and we recommended the articles of someone else instead of your own. You will find all the information you require by consulting the advertising columns of the current and a few past numbers of this Journal.

Asparagus Culture (*A Young Gardener*).—Both your advisers may be right. In some gardens much preparation of the soil is needed to induce the plants to grow satisfactorily, while in others they will grow well in the ordinary soil without any elaborate preparation. In one of the finest gardens in the midland counties, managed by a gardener of great ability, it is only with the greatest difficulty that Asparagus can be grown; on the other hand we know acres of good Asparagus without the land having been even trenched before it was planted. Read carefully the notes published in the present number, and follow the mode of culture detailed that appears the most applicable to your soil and situation.

Carnations for Christmas (*Mrs. Mason*).—You are expecting rather too much when you ask "how to treat cuttings of some beautiful Carnations to have flowers at Christmas," at least if you mean the festive season now pending. If you have a moderately heated propagating case, or a warm house, you may insert the cuttings in sandy soil, water them, and cover with a bellglass. If this is wiped out daily and careful attention is given the cuttings may strike, although this is not the best season for striking them, and with proper culture and suitable varieties the plants may be had in flower at Christmas, 1881. We shall shortly publish notes on the cultivation of these flowers and enumerate some good varieties.

Water Melons (*A Gardener*).—They require practically the same treatment as ordinary Melons, and may be grown in houses or frames. We have grown them successfully by having strong plants ready for planting in May, by which time the frames that had been employed for forcing Potatoes were at liberty. The soil was removed and a few barrowfuls of fermenting materials mixed with the old bed, the soil replaced, and when gently warmed the Melons were planted. They were then watered, pruned, and ventilated as for ordinary Melons, and in due time fine fruits ripened; but they were not by any means equal in flavour to the best named varieties of Melons grown under precisely the same treatment.

Strawberries, Weight per Acre (*W. B.*).—In our issue of August 26th of the present volume you will find on page 196 an answer to a question on this subject. The estimate is, however, necessarily approximative, as so much depends on the soil and mode of culture pursued, and also on the seasons, all of which circumstances greatly influence the productiveness of the crops. Suitable distances for planting are 2 feet 6 inches between the rows, and 18 inches between the plants in the rows, or about eleven thousand plants per acre. In Kent *Vicomtesse Héricart de Thury*, syn. *Garibaldi*, is more extensively grown than any other variety for market purposes. If you apply to Mr. Lovel of Weaverthorpe, York, he will send you his pamphlet which has reference to growing Strawberries under field culture.

Lapagerias Dying (*W. K.*).—You appear to have treated the plants correctly both as regards soil and careful watering. We are inclined to think that the peat contains something that is injurious to the roots. We have had peat that was quite unsuited for *Lapagerias*, also for *Camellias* and other plants. We should try some from a fresh source. The water, too, may be injurious, but if the lime is the deleterious ingredient we should expect that *Camellias* would similarly fail to flourish. You can have the water analysed by your county analyst, but if you prefer submitting a portion to a London analyst we will send you the address of one if you desire us to do so.

Hyacinths (*D. M. E.*).—The bulbs that are "raised out of the pots" have not been properly potted. The soil on which they rest has been much too firm; and, instead of the mass of roots entering it freely it has by its resistance caused the displacement complained of. If the roots are not more than an inch or two long, which is probably the case, the bulbs should be at once potted afresh, and if the work is done with great care the Hyacinths will flourish. As much of the soil must be taken from the pots as will enable you to hold each bulb in the left hand in the centre of the pot, the roots bauging so that they do not touch the bottom; then with the right place in the soil carefully, not pressing it about the roots, which are very tender, but giving instead a few smart raps of the pot on a firm bench, still holding the bulb with the hand. When the pots are filled with soil it may be pressed down round the sides, but the bulbs must not be pressed down, nor the roots crushed. Water them immediately through a fine rose, and cover with cocoa-nut fibre refuse for about three weeks, by which time they will be well established. When the bulbs are partially upheaved and not rectified the plants are never satisfactory, as the spikes grow in a slanting direction and are with difficulty staked upright to show them to advantage.

Arrangement of Hot-water Pipes (*G. S.*).—If the pipes rise directly from the boiler to the level of the house, as they should do, only the slightest possible rise in the flow pipe is requisite through the house; indeed if the vertical portion from the boiler to the house is considerable the water will circulate freely through the pipes if they are placed quite level. Four-inch pipes are preferable to 3-inch because of their greater heating surface, and because, the volume of water being greater, the pipes do not cool so quickly after being heated; 3-inch pipes, however, are preferable for certain small structures where the heat from larger pipes would be excessive. We do not recommend the plan of having very small or 2-inch flow and return pipes for connecting the 4-inch pipes with the boiler, although we know the plan is adopted in many places, and apparently answers well. We are unable to advise you on the other subject you mention; your own ingenuity will be of far more value to you than any information we can convey.

Heating Greenhouse (*P.*).—Your proposed plan of heating as described in your letter, not as shown in your sketch, will answer. If you have a stage you may have the flow pipe under it if you choose by sinking the boiler, or if you have a bed the pipe may be as you propose. The bed will answer very well; and by placing some plants on inverted flower pots, and not needlessly spilling water, the bed will not be too moist in the winter. The flow pipe should proceed from the top of the boiler, with a vertical rise of a foot or two, then very gradually rise to the opposite end of the house, the air pipe being inserted at the highest point, to return as you propose, and enter the bottom of the boiler. By this arrangement the circulation will be certain, and a flow and return 4-inch pipe, as indicated, will be quite sufficient for your purpose. The propagating pit will be useful. It will be advisable to have a shield of some kind between the flow pipe and the plants—a row of roofing slates fixed on edge would answer, and not occupy much space.

Red Spider on Peach Trees (F. W.).—No good cultivators permit the trees under their charge to get into the state you describe. By keeping the trees healthy—the roots being active, in good soil, and plentifully supplied with water—ventilating judiciously and syringing thoroughly, the trees are kept free from red spider until the fruit commences ripening. If a few insects find their way to the trees when the syringe is discontinued they are easily dislodged by a few thorough washings with the garden engine or syringe after the fruit is gathered. There are two ways of syringing: one is the too common mode of distributing the water gently, as if in fear of disturbing any insects that exist; the other is to carefully direct the water so that it strikes directly on every leaf with such force as to dislodge the insects if there are any. The one mode may be described as playing with the syringe, the other using it. There are numbers of young gardeners and amateurs who either do not know how to employ the syringe effectually, or if they do know are afraid of making their arms ache in the use of it; if this were not so there would not be so much red spider on Peach trees in houses. If Vines are in the same house with Peach trees it is not imperative to cease syringing the latter when the Grapes are colouring. A heavy syringing applied to the Peach trees now and then early in the morning of fine days, when the house can be freely ventilated, will not in the slightest degree interfere with the colouring of the Grapes; but in very hot weather is much more likely to assist them in finishing well.

Grapes for Market (J. M.).—In compliance with your request we forwarded your letter to Mr. W. Taylor, and the following is his reply:—"You have too many varieties of Grapes in your house, and the Vines have been too heavily cropped. Twelve bunches to a rod would give better results than twenty. The best Grape for sale or any other purpose till the end of the year is what is sold as Black Hamburgh or Frankenthal. As you appear to have six of these, they would probably fill your house sufficiently in time if some of the less valued sorts were cut gradually away to make room for the extensions of these, and would give a better return than the seventeen now do. If a late Grape must be grown with them, Alicante or Mrs. Pince would be more likely to succeed than either Gros Colman or Lady Downe's, which require a very long season and the best possible treatment. The late Vines must have the best position, say the south-east corner, and even then you must not be surprised if the fruit does not attain absolute perfection. A border only 2 feet in depth is rather shallow for an inside border, and will require watering very frequently, probably at intervals of eight or ten days during the growing season, and must be mulched from before midsummer till the fruit is cut. If some of the less valued Vines are cut out at once so that the sun has a better chance to assist in warming the house, you might possibly find your flue sufficient; but you should see that the flue is isolated from the surrounding soil and masonry. It ought merely to rest on piers and have nothing touch its sides; and then, although it is below the path, the heat will not be lost if there is an open trelliswork above it. A flue properly built and properly worked is not to be despised for heating a small house, and is generally cheaper than hot-water pipes, although for heating several houses which are near together as well as for a large house hot water is decidedly preferable. A minimum temperature of 55° to 60° during the growing season is all that is required as regards artificial heating to produce the best of Grapes, therefore if the flue is capable of doing that let it remain. Good Grapes such as we see at exhibitions ought to fetch 6s. or 7s. a pound now if sold direct to consumers, or if to a tradesman who has run all risks they will fetch a third less."

Labour for Estate (D. L. G.).—It is utterly impossible for anyone to answer your question without knowing more particulars. Some park and pasture land, when the fences are good, require but little labour; others, where the fences are bad, much labour. Some pleasure grounds, where there are extensive borders to be dug and many shrubs to be moved, pruned, and kept in order, also a great extent of lawn, with some flower beds, need three times the amount of labour that others do where there is comparatively little of such work to be done. Then you afford no idea of the extent of the "beds, borders, and wall trees," and as for the "pumping" no one ought to know so well as yourself how much time it occupies; certainly we have no means of knowing. An active young man would easily manage the houses and plants, and have some spare time for attending to the wall trees and other matters. We have known estates such as the one in question managed by three men, and others not larger affording employment for three times the number—everything depends on their nature and keeping.

Names of Fruits (X. F. Z.).—The specimens you have sent must be of some local variety, which we cannot identify.

Names of Plants (W. G. J.).—1, *Pteris serrulata*; 2, *Pteris cretica albolineata*; 3, *Selaginella Wildenowii*. (*R. S. O.*)—1, Specimen very shrivelled, but it resembles *Cystopteris fragilis*; 2, *Adiantum cultratum*; 3, *Asplenium longissimum*; 4, *Aspidium angulare*; 5, *Hypolepis distans*.



POULTRY, PIGEON, AND BEE CHRONICLE.

CLOVER AS A PREPARATORY CROP FOR WHEAT.

(Continued from page 536.)

IN continuation of this subject we shall show that which the home farmer requires specially to understand—namely, why a crop of Clover is so good a preparatory crop for Wheat. The practical farmer of long experience knows the result, but he is unable to account for it without reference to the scientific chemist, and the researches of men like Dr. Voelcker. There is yet another important point to be considered. Does the organic remains of the Clover plants—their roots, stems, and leaves—after decomposition leave more manure in the land than the Wheat crop can

make use of? If so, we have the means of obtaining a further valuable crop after the Wheat. The questions also arise, If there is a large residue of manurial elements left in the land after the wants and requirements of the Wheat growth has been supplied, what is the nature of it? Is it best suited for the production of another cereal crop, or best suited for a pulse or root crop? If the home farmer read the following quotations from Dr. Voelcker's experiments and observations he will, with a little consideration, be enabled to answer these questions.

We must first refer to the following analysis of Clover roots by Dr. Voelcker. "The roots, having been first shaken out to free them as much as possible from soil, were then washed with cold distilled water, and after having been dried for a while in the sun were weighed, when the square yard produced 1 lb. 10½ ozs. of clean Clover roots in an air-dry state; an acre of land accordingly yielded, in a depth of 6 inches, 3½ tons, in round numbers, of Clover roots. The analysis gives the general composition of the roots—water, 44.675; organic matter, 49.236; mineral matter, 6.089; total, 100.000; containing nitrogen, 1.297; equal to ammonia, 1.575. Assuming the whole field to have produced 3½ tons of Clover roots per acre there will be in round numbers 100 lbs. of nitrogen in the Clover roots from 1 acre, or about twice as much nitrogen as is present in the average produce of an acre of Wheat." This clears up one of the difficulties which we wish the home farmer to remember. The next and highly important experiments "were made upon a Clover soil from part of 11 acre field at Burcott Lodge Farm, Leighton Buzzard, in Bedfordshire, once mown for hay, and left afterwards for seed. The produce of Clover hay was 2½ tons and 3 cwt. of seed per acre.

From the analysis we find, as might be expected, the proportion of nitrogen is largest on the surface soil, where all the decaying leaves dropped during the growth of the Clover for seed are found, and wherein root fibres are most abundant. For the contents of the first 6 inches we have of nitrogen 4725 lbs.; nitrogen in roots, 51½ lbs.; nitrogen in second 6 inches of soil, 3350 lbs. Total amount of nitrogen per acre in 12 inches of soil 8126½, equal to ammonia 9867, or in round numbers 3 tons and 12½ cwt. of nitrogen per acre, equal to 4 tons 8 cwt. of ammonia. This is a much larger amount of nitrogen than occurred in the other soil, and shows plainly that the nitrogen accumulates in the surface soil when Clover is grown for seed, thus explaining why Wheat succeeds better on land where Clover is grown for seed than where it is mown for hay. This, however, is denied by others, who say land cannot become more fertile when a crop is grown upon it for seed which is carried off than when that crop is cut down and the produce consumed on the land. The chemical points brought forward in the course of this inquiry show plainly that mere speculations do not much advance the true theory of certain agricultural practices. It is only by careful investigation that positive proofs are obtained. No manure can be compared in point of efficacy for Wheat to a really good crop of Clover. The farmer who wishes to derive the full benefit from his Clover lay should plough it up for Wheat as soon as possible in the autumn, and leave it in a rough state as long as is admissible, in order that the air may find free access into the land, and the organic remains left in so much abundance be changed into plant food—in other words, in order that the crude nitrogenous organic matter in the Clover roots and decaying leaves may have time to become transformed into ammoniacal compounds, and these in the course of time into nitrates, which I am strongly inclined to think is the form in which nitrogen is assimilated by cereal crops. When the Clover lay is ploughed up early the decay of the Clover is sufficiently advanced by the time the young Wheat plant stands in need of readily available nitrogenous food, and this being uniformly distributed through the whole of the cultivated soil is ready to benefit every single plant."

Our quotations having shown that a much larger amount of nitrogen is left in the soil after the Wheat crop than could be assimilated by it, the next point is, What rotation of cropping is calculated to make the best use of the remaining cereal plant food? In the ordinary four-course it must be remembered that the fallow for roots succeeds the Wheat crop, which would practically go far to neutralise the remaining plant food, except in the case of the Clover lea being foul with Couch Grass, in which case we must not expect that an amount of manure left after the Wheat would be worth our attention. If the Clover lea was clean the Wheat stubble would probably be clean also. It is in this case that we wish to speak of the crop which should succeed the Wheat. Upon all mixed soils or strong loamy land Barley succeeds much better after Wheat than after roots fed off by sheep, and is more likely to produce a good malting sample. We must then adopt a five-course rotation in order to make available the residuary manure. The rotation should be Clover, Wheat, Barley, roots, Lent corn or part Wheat, in which case the Clover may be seeded in the Wheat portion of the fifth lain, the other portion being seeded with Beans and Peas after Lent corn. Now the advantage of this five-course over the common four-course is self-evident, especially upon those farms which derive their profit from the sale of cereal crops. To conclude the subject we shall again quote from Dr. Voelcker's summary of results obtained from his own investigations:—"A good crop of Clover removes from the soil more potash, phosphoric acid, lime, and other mineral matters than any other crop usually grown in this country. There is fully three times as much nitrogen in a crop of Clover as in the average produce of the grain and straw of Wheat per acre. Notwithstanding the large amount of nitrogenous matter and of ash constituents of plants in the produce of an acre Clover is an excellent preparatory crop for Wheat. During the growth of Clover a large amount of nitrogenous matter accumulates in the soil. This accumulation, which is greatest in the surface soil, is due to decaying leaves dropped during the growth of Clover, and to an abundance of roots containing when dry from $1\frac{1}{2}$ to 2 per cent. of nitrogen. The Clover roots are stronger and more numerous, and more leaves fall on the ground when Clover is grown for seed than when it is mown for hay; in consequence more nitrogen is left after Clover seed than after hay, which accounts for Wheat yielding a better crop after Clover seed than after hay. The development of roots being checked when the produce in a green condition is fed off by sheep, in all probability leaves still less nitrogenous matter in the soil than when Clover is allowed to get ripen and is mown for hay, thus, no doubt, accounting for the observation made by practical men that, notwithstanding the return of the produce in the sheep excrements, Wheat is generally stronger and yields better after a Clover crop mown for hay than when the Clover is fed off green by sheep. The nitrogenous matters in the Clover remains on their gradual decay are slowly transformed into nitrates, thus affording a continuous source of food on which cereal crops specially delight to grow. There is strong presumptive evidence that the nitrogen which exists in the air in the shape of ammonia and nitric acid, and descends in these combinations with the rain which falls, satisfies, under ordinary circumstances the requirements of the Clover crop. This crop causes a large accumulation of nitrogenous matters, which are gradually changed in the soil into nitrates; the atmosphere thus furnishes nitrogenous food to the succeeding Wheat indirectly, and, so to say, gratis."

Clover not only produces abundance of nitrogenous food, but delivers this food in a readily available form (as nitrates) more gradually and continuously, and consequently with more certainty of a good result, than such food can be applied to the land in the shape of nitrogenous spring top-dressings.

WORK ON THE HOME FARM.

Horse Labour.—The late open weather has enabled the farmers to complete the sowing of Wheat; a portion of the lain on some farms where the land is constantly cleared of Turnips by sheep will now be sown as fast as the ground is ready. If our plan be adopted—that is, ploughing and seeding simultaneously, the corn will vegetate quickly in all open weather, and the plant become almost as strong as that sown last month. It depends entirely upon the condition of the land whether Wheat should be sown all through January and the first half of February, or whether the land should be held over and sown with Lent corn the first dry time in the spring. Upon good loams or mixed soil in a favourable climate we prefer to sow Wheat until the time named in February, because there is more chance on such land of obtaining a good sample of Wheat than of Barley fit for malting, especially if the land is well farmed, the roots having been fed off by sheep eating cake or corn. The Clover plant is much more likely to succeed in the Wheat than in the Barley, because the Barley is more likely to overstraw and become laid than the Wheat crop. It is difficult to do otherwise with the land left uncompleted as an autumn

fallow than we have advised for several weeks past—that is, to plough the land with a single rafter furrow in order to keep the grass on the surface which the untoward weather has prevented being worked out and carted away in due course. We consider it very unwise to plough it under again with a heavy deep furrow after so much costly labour has been expended in bringing it to the surface. Fallow ploughing will still be the principal work on the farm until completed. A time of comparative leisure for the horses will then have arrived. There will often be carting work to be done relating to repairs, carting timber, bricks, lime, and sand, and in case of frosty weather carting wood from the coppices, such as bavins, hoops, hurdles, and poles. The laying-out of yard dung on to the Clover seeds and carting it for Potatoes and Mangold crops into heap in the field where it will be required for use will need attention, as it will save much time in the busy period of spring. In fact, unless the dung is already in the field at planting time we would prefer applying guano to these crops, and save the time of carting and laying out dung from the homestead; for it often happens the work of planting, using only artificial manure, may be completed in as little time as the carting of dung only, which is a matter of prime importance in a changeable climate like ours.

Hand Labour.—Hedging, ditching, wood cutting in the covers, and planting Thorns will be going on whilst the weather is open. Some work on the farm roadways and about the premises, such as laying out and spreading gravel, may be done; the roadways, however, will never require much gravel if the outsides or water tables are kept free. Much of the earth may be carted away to the heap for earthing cattle pens, or for making compost in admixture with dung for the pastures. Cattle now will require special attention with regular feeding upon a well-considered plan as to the quantities of roots, cake, meal, and fodder. This remark will apply with double force to sheep which are feeding in the open fields, subject to all the variations of weather. This reminds us of the question put to us to-day by a farmer who has three hundred Down tegs fattening in the open fields. He said, "Can you tell me why my sheep should suffer from the scour, and render it necessary to have some of them killed? I give them as many cut Swedes as they will eat in troughs, and I also give them half a pound each of mixed oil cake and decorticated cotton cake mixed with hay chaff daily." We replied that it is always unhealthy for fattening sheep to eat a full allowance of cut Swedes by itself. Our plan is to give the cake in the meal state strewn over the cut roots, instead of giving the cake broken in the ordinary way and mixed with hay chaff. The detail of feeding makes all the difference, for when Swedes or roots of any kind are cut and given in troughs it is quite impossible to regulate the quantity eaten by each sheep; some of them may eat double the quantity compared with others. It is the same with cake when mixed with chaff. Too much or too little are both injurious to health or proof in the feeding of fattening sheep, for as some considerable time usually occurs between the hours of feeding, neither food counteracts the other like it does when given in admixture. When mixed the roots and meal enter the stomach together, and both act in unison in the maintenance of health and the making of meat. Giving cracked cake with hay chaff is very wasteful, for the animals are sure to rout and seek the cake first in preference to the chaff; nor can the quantity of cake be regulated so well for each animal as when meal is mixed with roots. There is also far less waste if the allowance of roots is moderate, so that the sheep can eat all the bait before leaving the troughs. Again, three hundred sheep are too many to feed in one lot as fattening sheep, for the food cannot be so well regulated as in feeding a flock of half the number, although the shepherd may keep the animals back from the troughs until they are all filled.

SMALL VERSUS LARGE POULTRY YARDS.

A FEW weeks ago you published some valuable notes from your esteemed correspondent "C." on a famous poultry yard in North Wales, which proved the great interest taken in fowls; but I am afraid it would have a tendency to lead the majority of beginners to think that if the successful keeping of fowls depended on such conveniences, they must give up all hopes of ever gaining profit or pleasure from them. To show that fowls may be kept in a very small space in the best of health and condition I will briefly describe the poultry yard of Mr. Evan Clatworthy, Ystalyfera, near Swansea.

During the last half dozen years or more the name of this gentleman has become familiar to all frequenters of poultry shows in South Wales, and many exhibitors at the largest shows in different parts of England have cause to remember the presence of his birds at those shows. At the great Birmingham Show held about twelve months ago one of the Buff Cochins shown from this yard was claimed for twelve guineas, and other birds from the same quarter have been sold at higher prices than that. Upwards of three hundred prizes have been secured during the last three years, and we might suppose that the accommodation for these birds must be of the best possible description; but such is not the case. The whole yard only measures 42 feet long by 27 feet in width. This space is surrounded by low sheds or runs, which are divided into a dozen or more compartments, with wire in front

and a good felt and tarred roof. The top range is divided into upwards of a dozen little coop-like runs, which are most convenient for hatching eggs and chicken-rearing. A narrow path runs round the front of all the runs, and the space in the centre, which measures 27 feet by 12 feet, is laid down in grass.

The number of fowls which are reared and kept in such a small space will astonish many persons. Two hundred have frequently been in the runs at one time! Last year 180 young chickens were hatched; this season they numbered 140. Many are sold for exhibiting and breeding as soon as they are matured enough, and a large stock of birds is always kept on hand. In two of the runs there are a few Partridge Cochins and Black Red Game Bantams of the best exhibition breeds, but Buff Cochins are the most numerous. No expense or labour has been spared to secure the very best birds for stock purposes, and the result is a class of birds second to none in the country. All are characterised by great size, short broad thick bodies, small heads and beautiful clean combs, well tufted up wings, little tail but plenty of saddle feather, abundance of fluff, heavy leg and foot feather, and a rich buff colour. Respecting size it may be interesting to state that Mr. Clatworthy has had cockerels weighing from 9 lbs. to 11 lbs. at six months old, and when full grown they have turned the scales at 14 lbs., while the hens reach 10 lbs. and 11 lbs. Some object to Cochins because they are coarse for eating, but they are certainly not so until they are over one year old, and for rearing to kill while young for the table no other fowl can surpass them.

After seeing so many fowls in such condition on this very small space I naturally asked Mr. Clatworthy what foods he employs. These only consist of the common grains and green food, and as meal Spratt's patent is preferred to all others. Great attention is also paid to keeping the runs clean and free from all accumulations of filth or vermin. After inspecting this yard I am enabled to say that with good management fowls can be profitably kept in a small space in either town or country.—M. M.

[We congratulate Mr. Clatworthy on his great success under the circumstances detailed by "M. M." It cannot be too emphatically impressed upon our readers, that with so small a space the utmost attention possible to cleanliness and feeding is indispensable. In larger yards these points are important, but in a confined space they are all-important.]

CANTERBURY POULTRY SHOW.

THE Kent County Pavilion, in which this Show was held on the Thursday, Friday, and Saturday of last week, is admirably suited for the purpose. All the leading classes of poultry were penned on the upper tier in a splendid light, and the Pigeons occupied the gallery. The appearance the birds presented on the last day of the Show bore testimony to the care with which they had been treated. An ample supply of clean chaff in every pen did much to keep the birds fresh and clean, and they seemed to be liberally supplied with green food. The poultry entries (exclusive of selling classes) numbered rather over three hundred, while the Pigeons were just a few under that figure. The quality of the exhibits was, on the whole, excellent; and as the number of visitors on the later days caused the avenues to be inconveniently crowded at times, we may assume that the Show was, what it deserved to be, a financial success. Messrs. Teebay and W. J. Nichols judged the poultry; Mr. Esquilant the Pigeons.

DORKINGS.—*Coloured Cockerels* (seven), were only a moderate class. First (R. Cheesman) fair in size but rather long in leg, and lighter in colour than we like. Second (J. Collins) better in length of leg, but rather wanting in breast. Third (R. Cheesman) much too upstanding for our taste; h.c., J. Castleman Brown; c., W. Sharp and C. Ratcliffe. *Pullets* (eight) were better as a class than the cockerels. First (Goodwin) good in size, well set down on leg, and full in breast. Second (Cheesman) longer in leg and not so square in frame. Third (Castleman Brown) a neat short-legged bird but small; v.h.c., Sharman; h.c., Collins; c., Wachter. *Silver-Grey Cockerels* (ten).—First and Dorking cup (F. Cheesman) inclined to be long in leg and deficient in breast, nice in colour, and good in feet. Second (Plummer) neat but very yellow in saddle. Third (F. Cheesman) too slim and white in tail; h.c., Wachter. *Pullets* (seven).—First (Wachter) an evenly coloured pullet of good shape and fair size. Second (F. Cheesman) good in body colour, but light in breast and rather slightly made, for which reason we preferred third (Wachter), a squarely-built pullet, but also mossy on breast; h.c., Boissier and Wachter. *Any Other Variety* (six) were a good class, all Whites. First (Woodgate) neat in colour, and fair in size and shape; the cock rather coarse in comb. Second (Foster), the cock very ugly in comb and warm in colour; hen moderate. Third (Wingfield Stratford) nice colour, but the cock very hollow in centre of comb, and the hen's comb crooked; h.c. (Eldridge), the cock good but ugly in comb.

COCHINS.—*Buff Cockerels* (eleven) were a strong class. First (Bloodworth) a rich shade of buff, good in size and shape, but wants middle toe feather to carry off his hocks. Second (Tuke) shapely and good size, but had rather too much tail, and fails a little in colour on wing. Third (Paxon) rather upstanding and has too much tail, colour good.

39 (G. H. Wood) a Lemon, good in shape but not large enough; v.h.c., C. Brown, Jenkins; h.c., Stickings; h.c., Sear, good size and shape but bad comb. *Pullets* (eleven) were a fine average class. First (Paxon) good in shape, colour, and foot feather, but not large. Second (Stickings) much better in size, but not so even in colour. Third (Jenkins) neat foot feather and good shape, but hardly even enough in colour; h.c., G. H. Wood, Bloodworth, Paxon. *Any Other Variety Cockerel and Pullet* (nine).—Cup-and-first (Nettlefold) a very good all-round pair of hocked Partridge, the cockerel very rich in colour, the pullet well marked but Brama-shaped. Second (G. H. Wood) Whites, the pullet good in size and shape, the cockerel too slim and too large in comb. Third (Sawthorn) Partridge again, the pullet well marked, but the cockerel not bright enough in colour; h.c., Buckland. Blacks in fair condition.

BRAHMAS.—*Dark.*—*Cockerels* (eight).—But for the winners only a moderate class. First (Lingwood) a large massive bird, ticked on breast and white in fluff; a perfect Brama in shape. One of the Palace team we think, but improved in saddle since then. Second (Breeze) the big one that was at the Dairy Show, unfinished even now. Third (Marsh) very neat in comb, but poor in colour; h.c., Earle. *Pullets* (five) were not a grand lot. First (Lingwood) was, we think, unnoticed at Hull, and deep in moult then; she is now in much better form; her pencilling is good, of the heavy type, failing just a little in breast, and with a brown shade all through. Second (D. Jones) very poor in breast marking, also in saddle, and short of foot feather. Third (Norris) a new one, of the finely pencilled grey sort; we should have put her before second; h.c., Metcalfe. *Light.*—*Cockerels* (thirteen) after the winners were not a very good lot. First and second (G. H. Wood) both fine all-round hocked birds. The first most massive, but rather yellow; the second very neat indeed, and not so warm in shade. Third (Howland) large and shapely, but rather uneven in comb, and too much buff in hackle; h.c., Ive, far too much buff in hackles; h.c., Laurie, Breeze. *Pullets* (fifteen), as a class, showed too much buff. First-and-cup (G. H. Wood) a very shapely hocked pullet, of good size and colour, very neat in head, and splendidly shown; an easy win. Second (Nettlefold) another very nice pullet, not so shapely or clear in colour as the winner, but still a good one. Third (Breeze) very bad in colour, for which reason we should have put h.c. (Morgan) before her; v.h.c. (Bloodworth), either very dirty or bad colour; h.c., Ayliffe; c., Morgan.

SPANISH.—*Cockerels* (fourteen) were a very good class. First (Le Sueur), the second-prize Birmingham bird, we think, not now in such good form. Second (Francis) a moderate-sized face of the old cauliflower type; condition fine. Third (Chatterton) a smart cockerel in good condition, very good quality of face and lobe, comb good but not quite straight at the back; h.c. (H. Brown) a nice quality of face, but not enough of it; h.c., Nash, Butler; c., Francis. *Pullets* (ten).—A rather strong class. First-and-cup (Rogers Bull) the second Palace and first Birmingham winner. Second (Nash) the third Palace winner. Third (Brown) a good quality of face but small; h.c., Shaxby, Woods.

FRENCH (four).—Small in numbers but good in quality. First (Wingfield Stratford) a good pair of Houdans; the pullet very good in crest, and the best of the two; the cockerel seemed wry-tailed. Second (Darley) Crêves, the pullet again being good in crest and muffling. Third (Wingfield Stratford) moderate Houdans, good in crest and comb.

LEGHORNS (thirteen) were a pretty good class, the first alone being Whites, the rest Brown. First (Bradbury Bros.) a neat pair, good in lobe, but the cockerel very heavy in comb. Second (H. Brown) a good Brown pair, the cock, however, heavy in comb and red in lobe. Third (Ayre) Browns also, neat in head and good in lobe; v.h.c. (Verrey) had one of the worst combs we have ever seen; h.c., Gibbs, Adams, and H. Brown.

GAME.—*Black Red.*—*Cockerels* (ten) were a moderate class. First (Theobald) a stylish bird of good reach, but not very bright in colour. Second (G. Dawes) also good in style, and better in colour than the winner. Third (Elliott) a good all-round bird; h.c., Warde and Dawes. *Pullets* (eight) were hardly up to the cockerels in quality. First (Foster) a stylish pullet, close in feather and good in colour. Second, Dawes. Third and h.c., Kingsnorth. *Brown Red.*—*Cockerels* (seven) included some very fine birds. First-and-cup (Mercer) fine in head and good in style and colour, neatly laced on breast. Second (Bond) another good one, fine in head and close in feather. Third (Warde) a close-feathered one also, moderately laced on breast. *Pullets* (six) were also a good class. First-and-cup (Martin) a shapely hard-feathered bird in fine condition. Second and third (Warde) of similar stamp to the winner, and not far behind her; h.c., Mercer; c., Foster. *Any Other Variety.*—*Cockerels* (six).—A good class. First (Colgrove) a good yellow-legged Pile, rather light in hackle. Second (Warde) another of the same colour, also light in hackle. Third (Foster) a large reachy bird of the same sort, rather short in head; h.c., Sutton. *Pullets* (eight) contained nothing very special. First (Warde), second (Colgrove) and third (Theobald) were all yellow-legged Piles.

HAMBURGS.—*Spangled* (six) were only moderate in quality. First (Plattin) Silvers, very good in colour and marking, moderate in lobe and comb. Second (Spendiff) Silvers again, the cock crooked in comb, the pullet rather cloudy on back. Third (Curry) Golden. *Pencilled* were a pretty good lot. First (Walter) a good all-round pair of Golden. Second (Plattin) Silvers of moderate quality. Third (Calcutt) Golden, the cock very neat and clear in lobe; h.c., Hooker and Calcutt.

POLANDS were only two pens; both first (Jarvis) and second (Huish) were Golden-spangled of good quality.

ANY OTHER VARIETY (eight).—First (Winser) a nicely laced pair of Andalusians, the cock rather heavy in comb. Second (Boissier) moderate Minorcas. Third (England) neat Silkies; h.c., Lambert, Andalusians.

BANTAMS.—*Game, Black Red* (thirteen).—First (E. Morgan) a very neat pair, good in colour and in fine condition. Second (Hore) not quite so good in colour. Third (A. Kitchin) bright in colour and in splendid condition, but rather loose in carriage of wing; h.c. (Anns) very good in shape and colour, but rather large; h.c., Ladd. *Brown Red* (six).—First (Vigers) a shapely pair, close in feather. Second Osborne. *Any Other Variety* (four).—First-and-cup (Hore) yellow-legged Piles, good in shape and colour. Second (Vigers) also yellow-legged Piles. Third (Morgan) willow-legged Piles; h.c. (Cobb) neat Duckwings. *Black or White, Clean-legged* (eight).—First-and-cup (Stephens) a singularly neat little pair of Black Rosecombs, good in all points. Second (Miss Bessie Ladd) Black Rosecombs, neat in comb and good in lobe. Third (Astley) the same sort again; h.c., Brett and Nettlefold, both White Rosecombs. *Any Other Distinct Variety* (seven).—First (M. Leno, jun.), a very good pair of Gold-laced, the cock rather heavy in comb. Second (Clarke, jun.), nicely marked Cuckoos. Third (Astley) Japanese; h.c., Buss (Silver-laced) and Hubbard (Japanese); c., Buss (Gold-laced).

DUCKS.—*Rouen* (eighteen).—A fine class. First-and-cup (J. H. Harvey) large in size, and very good in colour and marking. Second, Boulding; and third (Kingsnorth) also good, though some distance behind the winners; v.h.c., W. F. Harvey; h.c., W. F. Harvey, Jarvis, Cheesman, Howard (2), Arter. *Aylesbury* (ten).—First (Weston) a large pair, the Duck especially good. Second, Arter; and third (Hedges), also good pairs; h.c., Barrow, Sear. *Any Other Variety* (seven).—First (Sandum) moderate Pekins. Second (M. Leno, jun.) Mandarins. Third (Woodgate) rather large Black East Indian; h.c., Howard (Pekin), and England (Black East Indian).

TURKEYS (twelve) were a fine average class, but contained nothing of special merit. First-and-cup, Warde; Second, Mayhew; third, Warde; h.c., Phillips; c., Knight.

PIGEONS.

CARRIERS.—*Cocks* (nine).—First and second (Baker) both Blacks; the first best in beak wattle, the second in eye wattle. Third (Fulton) another good Black; v.h.c., Stephens (Dun); h.c., Hale (Black). *Hens* (eleven).—First (Pearce), second (Stephens), third (Baker), all Blacks well placed; h.c., Hale (Dun) and Baker (Black). *Bred in 1880* (eleven).—First-and-cup (Baker) a very promising Black, very even in eye wattle and good in beak wattle. Second (R. Fulton) a Black again, as also was third (Baker); h.c., Byford, Stephens, and Fulton, all Blacks.

POUTERS.—*Cocks* (twelve).—First (Gill) a Red Pied, not very even in rose. Second (Fulton) a Blue Pied failing in bill. Third (Baker) a good Blue Pied, long in limb and narrow in girth; h.c., Butler & Biggs (White), Gill (Silver Dun). *Hens* (twelve).—First (Baker) a Red Pied, rather heavy in body but good in crop. Second (Gill) a Dun Pied again. Third (Baker) a Blue Pied; h.c., Byford (White), Gill (Blue Pied).

BARBS (ten).—First (Baker) a fine Black. Second (Fulton) another of the same colour. Third (Butler & Biggs) a Black, broad and short in head; h.c., Hale (Black).

TUMBLERS (sixteen).—First (Fulton) an Almond, the best in head. Second (Rayner), and third (Baker) were also Almonds; h.c., Curry, (a Red Agate Splash), Pettman (a Long-faced Black), Savage, Baker (both Almonds), S. Palmer (a Long-faced Yellow Agate).

DRAGONS.—*Blue or Silver Cocks* (fourteen).—First (Osmond), second (Howard), and third (Osmond) were all Blues; h.c., Ashbee, Waterman, Winser, all Silvers; Fulton, Dwelly, Howard, all Blues. *Hens* (twelve).—First (Osmond), second (Fulton), third (Sutton); h.c., (Lush, jun.), were again all Blues. *Any Other Colour Cocks* (eleven).—First (Howard) a Blue Chequer. Second (Osmond) a Grizzle. Third (Howard) a White; h.c., Leith (Yellow). *Hens* (eleven).—First (Osmond) a Blue Chequer. Second (Waterman) a Yellow. Third (Howard) a Grizzle; h.c., Howard, Leith, Atkins. *Bred in 1880* (seventeen).—First (Waterman) a Red. Second (Osmond) a Blue Chequer. Third (Dwelly) a Grizzle; h.c., Osmond, Tate, and Ewen; c., Howard, Ashbee, Tate, and Ewen.

JACOBINS (eight).—First (Fulton) a Red; second (Avenell) also a Red; third (Fulton) a Black.

OWLS.—*English* (eleven).—First (Weaving), and second (Van Senden) were Blues; third (Brunton) and the two h.c.'s, (Van Senden, Fulton) were all Silvers. *Foreign* (eleven).—First and second (Baker) and third (Theobald) were all White Africans.

TURBIS (nineteen).—First (Fulton) and third (Homes) were Blues; second (Baker) a silver; h.c., Homes (2, Blues), Dungey (White), Fulton (Red).

FANTAILS (twelve) were as usual all Whites, and were a good class. First (Fulton) was splendid in tail. Second, Loversidge; third, Baker; v.h.c., Baker; h.c., Hall, Loversidge (2), Bakewell.

ANTWERPS.—*Short-faced Cocks* (eight).—First and second (Buckland) both Red Chequers. Third (W. Birchell) a Silver Dun. *Hens* numbered seven, all the birds in the list being Red Chequers. First, Weaving; second, Buckland; third, Pettman; h.c., Ashbee. *Homings, Long or Medium-faced*.—*Cocks* (twenty-three) were commented upon by the Judge as a good class throughout. First (Pearce) a Blue Chequer,

as also was second (Ayres), and third (Carvill); v.h.c., (Winser) a Red Chequer; h.c., Leake, Carvill, Ashbee (2), Bowes, Poncia, Hills (all Blue Chequers); c., T. Foat. *Hens* (seventeen).—First (Poncia) and third (Leake) Blue Chequers. Second (Pearce) a Red Chequer; h.c., Ashbee; c., Sutton. *Hatched in 1880* (sixteen).—First and third (Ashbee), as also second (Bowes) were Blue Chequers; h.c., Carvill, Wanser, Crust, and Poncia.

ANY OTHER VARIETY (seventeen).—Cup and second (Baker) with a Turbiteen and a Trumpeter. Third (Thomson) a Priest; h.c., Thomson (an Archangel), Allen (2, an Archangel and a Satinette), Nettlefold (a Magpie).

WATFORD POULTRY SHOW.

THE annual poultry Show in connection with the West Herts Agricultural Society was held at the Agricultural Hall at Watford on Tuesday and Wednesday last. Few places are better adapted for a country show than this hall; and although the competition is confined to persons residing in Herts or within twenty miles of Watford, many pens of good birds were shown. The attendance was numerous, and the Show altogether a success.

The *Dorkings* were pronounced by the Judge to be very good classes. In the Coloured class the first and second prizes went to the Rev. E. Bartrum, the third to the Rev. H. R. Peel. In Whites or Silvers the cup and champion cup of the Show was awarded to Miss Alice Peel for a splendid pen of Silvers; the cock is a fine-bodied bird, excellent in colour. Second, Alterton; third, Snewing.

In the *Cochin* class Mr. G. H. Wood won first and cup with a heavily feathered pen of Partridge; second, Wood; third, Tukey. Mr. Wood also won first for White Cochins with a very good pair.

In the *Brahma* classes the competition was very keen. First, Breeze; second, Leno; third, Breeze. In Light Brahmans, first and cup went to G. H. Wood for a good pen, but the cock was rather light in comb. Second and third, Breeze.

The *Game* were fair classes. First Black-breasted Red. First and third, Moss; second, G. Bentley. The Game cup went to C. Rowley for an unusually good pair of Brown-breasted Red; second and third, Flitt.

The *Hamburgs* were rather poor. First-and-cup (Spangled) G. J. Pointer; second, Miss Lawrence; third, Seward. In the Pencilled class first Pointer; second and third, Viscount Grimston.

In *Game Bantams* the first prize went to the smallest and smartest pen. First, second, and third, J. W. Flitt. In Any other variety first and cup were awarded to Golden Sebrights (Herbert Peel); second to Cuckoos (Wright); third to Japanese (Astley).

In *Crève-Cœurs* and *Houdans* first and cup to H. Jackson; second to A. Longman.

In *Any Other Variety* the entries were very numerous, and many pens of every imaginable kind were commended. The first prize was won by Black Hamburgs (Pointer), second by Plymouth Rocks (Ludgate), third by Polish (Huish).

The *Ducks* were a good class. First, How; second, Thompson; third, Eley. In Any other distinct breed Pekins won first. Cup, Mrs. Peel. Second, East Indian (Lord Ebury). Third, Fancy Ducks, Red-billed Whistlers (M. Leno).

In *Geese* the Judge left out all that were down behind and overfat. His decision seemed to astonish many of the Watford folks, but he undoubtedly was right. First-and-cup, Hill. Second, J. Lloyd.

In *Turkeys*, first-and-cup, Field; second, Leno; third, Longman. Any other variety, first and second, Finch; third, W. Jones Loyd.

Best Barndoor Cock and two Hens.—First, Snewing; second, Leno; third, Viscount Grimston.

The *Pigeons* were a good collection, especially the Tumblers, Magpies, and Fantails. Mr. T. C. Burnell acted as Judge.

LEEDS POULTRY AND PIGEON SHOW.

THIS Show opened on the Tuesday in this week and closes to-night. The poultry entries numbered 540, and the Pigeons 228. Mr. Dixon and Captain Heaton divided the judging of the poultry between them. Mr. J. Hawley judged the Pigeons. The Show was upon the whole a very fine one, and nearly all the classes were well filled.

GAME.—*Any Variety*.—*Cock* (nine).—These Any Variety classes, which we presume were meant to be to a certain extent champion classes, did not fulfil our expectations. First (Brierley) a reachy Brown Red, hard in feather but a trifle heavy in head and flat in shin. Second (Braithwaite) another stylish Brown Red, finer in head but not so powerful-looking as the winner. Third (Clegg) a Brown Red again, well pencilled on breast; h.c., Hodgson (Brown Red). *Cockerels* (thirteen).—First (Brierley) a Black Red, long in reach and good in head, but very faulty in colour on thighs and fluff. Second (Mason) a moderate Black Red. Third (Braithwaite) a Brown Red; h.c., Staveley (Black Red), Hick (yellow-legged Pile). *Pullet* (eighteen).—This was the best of these classes. First (Walton) a shapely willow-legged Pile, fine in head and hard in feather. Second (Brierley) a Brown Red, not the equal of the winner in head. Third (Whitehead) Brown Red again; h.c., Mason (Black Red), Ward (Brown Red); c., Sootheran & Palliser (Brown Red). *Black-breasted Reds*.—*Cock and Hen* (nine).—A moderate class. First (Sales) a reachy pair of birds, but the cock rather heavy in head and brown in fluff. Second (Hemmingway) not so good in style. Third (Staveley) a fine reachy

cock, very brown in fluff. *Cockerel and Pullets* (seventeen) were on the whole a good class. First (Brierley) a very stylish pair of chickens. Second (Mason) good in reach but dull in colour. Third (Sotheran & Palliser) better in colour but not so much style; h.c., E. Shaw, Jowett, Walton, Hick. *Brown-breasted and other Red (except Black)*.—*Cock and Hen* (eight).—Only a medium class. First (Mercer) good in colour but not quite in show form. Second Brierley. Third Mason; h.c., Robinson; c., Cannan. *Cockerel and Pullet* (twenty-two) contained some very good birds. First (Whitehead) a fine reachy pair, hard in feather. Second (Brierley) another good pair, the cockerel will look better doubtless when dubbed. Third (Mason) not so stylish, and the cockerel flat in shin; h.c., Warner, Robinson, Braithwaite, Sturzaker; c., Mercer. *Duckwings*.—*Cock and Hen* (nine).—A moderate class. First (Staveley) a stylish pair, good in colour, the cock perhaps rather short in head. Second (Addy and Carter). Third (Sales) not the equals of the winners in style or reach; h.c., Carless. *Cockerel and Pullet* (eight) contained nothing very remarkable. First (Staveley) hard in feather and good in style. Second (Hick) the cockerel heavy in head. Third (Fell) a moderate pair. *Any Other Variety*.—*Cock and Hen* (four).—First (Mason), second (Walker), and third (Garwood) were all yellow-legged Piles. *Cockerel and Pullet* (seven).—First (Brierley) and second (Mason) yellow-legged Piles, the first a very good pen indeed. Third (Clegg) willow-legged Piles.

DORKINGS.—*Cock and Hen* (eight) a good average class, all the birds being coloured. First (J. White) a good-sized shapely pair. Second (Peacock), the cock rather long in leg and comb, and rather light in colour. Third (Barker) a very shapely hen, of good size, but dark in feet, as also was her mate; v.h.c., Cannan, Carver. *Cockerel and Pullet* (eleven).—Again made up entirely of coloured birds. First (Bell) a good pair, the pullet the best of the two; the cockerel too upstanding for our taste. Second another very similar pair, from the same yard. Third (Baker) a moderate pair, the cock loose in comb; h.c., (King) a fine-sized cockerel, but the pullet out of form; h.c., White.

COCHIN-CHINA.—*Cock and Hen* (twelve) were a strong class. First (T. Pye) a very evenly coloured pair of Lemons, of good size and shape, but the cock wanting more toe feather to carry off his hocks. Second (C. Brown) Buffs, of medium shade, good in colour and squarely made, but the cock loose in wing. Third (Cannan) a very shapely Partridge pair; the cock failing in colour and white in tail, with too much of it; the hen not very good in body marking; h.c., Sowerby (Buffs). *Cockerel and Pullet* (fifteen), not so good as the old birds. First (Cannan) a moderate pair of Partridges. Second (C. Brown) Buffs; the pullet shapely, but not very even in colour. Third (T. Pye) Lemons; the cockerel a good one, but rather loose in comb; h.c., Croft, Mitchell (both Buffs).

BRAHMAS.—*Light Cock and Hen* (nine).—Except the winning pen not a strong class. First (R. Mitchell) was the cup Birmingham cock mated with a very good hen. Second (T. S. Clarke), the cock far too much tail without saddle, and the hen rather warm in colour. Third (Breare) cock very good, but far too warm in colour on saddle; c. (Lucas) the cock rather long in leg and a trifle rough in comb; the hen not over-large, we liked them second best in the class. *Cockerel and Pullet* (nine).—Had no less than six empty pens, and there was nothing really good left. First (T. S. Clarke) a fair pair, the cock rough in comb. Second, Whitehead. Third, Grieve. *Dark*.—*Cock and Hen* (fifteen).—Contained some very fine birds. First and plate for best pen in show (R. Mitchell). The Hull first-prize cock mated, if we mistake not, with the Hull cup hen. Mr. Mitchell apparently means to make it warm for the Brahma men. Second (Brooke), the cock neat in head, good in colour and shape, a little too much tail for his saddle, and hocked; only a moderate hen. Third (Hargreaves) a fair hocked cock mated with the third Birmingham hen; c., Peacock. *Cockerel and Pullet* (twelve) were not a very grand class. First (W. Mitchell) a moderate hocked cockerel, blind of an eye; mated with a pullet nicely pencilled on breast, but failing on other parts. Second (R. Mitchell) the Hull cup cockerel again with his mate of York; on the whole we should have placed them first here. Third (Sowerby) another of the Hull cockerels mated with a fairly marked pullet of the clear-grey type.

SPANISH.—*Cock and Hen* were four only, and not very good. First (Cannan) a large but rather rough-faced pair. Second (Thresh) fair in face but out of sorts. Third (Birch & Boulton) moderate. *Cockerel and Pullet* (four).—First-and-plate for best pen of Spanish, Houdans, Crèves, Polish or Sultans (James Roberts), one of the best faced cockerels we have seen this season, good also in comb and general points; mated with a pullet large in face and lobe, but with comb not over yet. Second (Dalton) a long way behind the winners. Third (W. Roberts) poor.

HOUDANS.—*Cock and Hen* (six) were a pretty good class. First (Cannan) good in colour and the hen good in crest. Second (Turner) not so good in crest. Third (Thomas) a good all-round pen; h.c., W. T. Percival, J. Till. *Cockerel and Pullet* (nine).—A moderate class. First (Thomas) a very good pen of chickens in all points, but not very large. Second (Lee), the cockerel poor in crest and leggy; the pullet a moderate-sized one, of the dark sort. Third (Marx) a pretty cockerel, but the pullet crooked in crest; v.h.c., Millner; h.c., Woolley.

CREVE-CŒUR.—*Cock and Hen* (five).—First (Ward) a fine hen, particularly good in crest and muffling; the cock good in size, but too long in leg. Second (Turner), both birds good in body, but the cock very coarse in head. Third (Cannan) a neat all-round pair, not

so large as the two preceding pens; h.c., Calvert. *Cockerel and Pullet* (nine) with two empty pens, and on the whole a good class. First (Ward), the pullet a good one in all points; the cockerel not so good in crest. Second (Fullerton), the pullet best again; the cockerel rather long in leg. Third (Calvert) of similar type; v.h.c., M. Hall, H. Beldon.

POLANDS.—*Any Variety Cock and Hen* (ten) were a wonderfully good class, and must have been hard to judge. First (Beldon) a well-known pen of Silvers. Second (Rawnsley) Goldens, the hen specially good in crest. Third (A. Smith) Silvers again, the hen very well marked and globular in crest; v.h.c., North and Battye (White Crests), Bowker (Silvers), Cannon (Silvers), Huish (Silvers); h.c., Perry (Silvers), Rawnsley (White Crests), A. Smith. *Cockerel and Pullet* (eleven) were another very even class. First (Rawnsley) a neat pair of White Crests, not quite finished yet. Second (Rawnsley) Silvers moderately marked, but good in crest. Third (Oscroft) better marked Goldens, moderate in crest; h.c., Beldon (Goldens), North and Battye (White Crests), Boothby (Goldens), Bowker (Silvers), Huish (Goldens).

SULTANS.—*Cock and Hen*, numbered six, with two pens empty. First and second (Atkinson) were both good pens, neat in colour, crest, and foot feather. Third (Rawnsley) we should have placed behind the h.c. (Atkinson), as though the cock was very neat, the hen showed a distinct buff shade in her neck hackle.

HAMBURGHES.—*Spangled*.—*Cock and Hen* (eleven with four empty pens) were a good class. First (Beldon) Goldens, good in colour and marking, but the cock red in lobe. Second (Bracewell) Goldens again, the cock not very steady in comb. Third (Rawnsley) neat Silvers, the hen very well marked, but a little heavy in comb; v.h.c., Ashton and Booth (Silvers); h.c., Pickles and Rawnsley, both Silvers. *Gold-spangled Cockerels and Pullets* (fifteen) were of very good quality throughout. First (Bracewell) a neat pair, rich in colour and good in comb. Second, another pair from the same yard of similar type. Third (Cannan) not so clear in marking; h.c., Bracewell, Beldon, Moore, Roberts, Rawnsley, Hurst. *Silver-spangled Cockerels and Pullets* (seven).—First (Beldon) good in colour, condition, and marking, and clear in lobe, but the cock not quite even in comb. Second and third (Rawnsley), the former both rather coarse in comb; the hens in both pens very even in marking; h.c., Ashton & Booth, Cannan. *Pencilled Cock and Hen* (eight).—Another fine class. First (Rawnsley) a well-known pen of Goldens, the cock splendid in tail. Second (Beldon) also a very good pair of Goldens, the cock's tail very well marked, the hen not so clear as the winner's. Third (Rawnsley) good Silvers; v.h.c., Jackson (Goldens), Hoyle (Silvers); h.c., East (Goldens). *Golden-pencilled*.—*Cockerels and Pullets* (thirteen) contained some pens of very high merit. First (Driver) a very good pair in all points. Second (Rawnsley) inferior only in the marking on the pullet's breast. Third (Kidson), another very good pair; v.h.c., Webster (2), Simpson. *Silver-pencilled*.—*Cockerel and Pullet* (nine) with two empty pens. First (Cannan), neat in comb, good in lobe, and fairly marked. Second (Rawnsley) also a good all-round pair, the cockerel very good in tail. Third (Pickles) not so good in the marking of the tail of the cockerel or breast of the pullet as the other two; h.c. (Beldon) a very good pair, seeming rather overdone. *Blacks*.—*Cock and Hen* (nine).—First (Bracewell) good in style and brilliant in colour, not quite clear in lobe, and rather heavy in comb. Second (Beldon) a very stylish pair, neat in head, but also rather pink in lobe. Third (Rawnsley), the cock very lustrous in plumage, but perhaps a trifle large; h.c., Mallinson, Lancashire. *Cockerel and Pullet* (sixteen).—A very good class indeed. First (Pemberton) good in style and colour, neat in head, and clear in lobe. Second (Beldon) another very similar pair, not quite so brilliant as the winners. Third (Lancashire) a very good pair, the cockerel a little rough in comb; v.h.c., Mallinson, Rawnsley, Wood & Hirst, Bentley, Hobson; h.c., Simpson.

ANY OTHER VARIETY.—*Cock and Hen* (eight).—First (Calvert) a fine upstanding pair of Malays. Second (Riley) a really good pair of La Flèche. Third (Twose) moderate Andalusians; v.h.c., G. Burnell (Malays); h.c., Brooke (Malays), B. Smith (White Leghorns), Bailey (Malays). *Cockerel and Pullet* (seventeen).—First (Rawnsley) Sultan chickens; we think properly entered, as the Sultan class was limited to birds over a year. Second (Brooke) another good pair of Malays. Equal second (Calvert) good La Flèche; v.h.c., Hurst (Brown Leghorns); c., Clarke (Minorcas), B. Smith (Brown Leghorns).

BANTAMS.—*Game Cock, any variety* (ten).—Beyond the winners only a moderate class. First (Walton) a stylish Black Red, perhaps a trifle short in head. Second (Craven) a good willow-legged Pile. Third (J. Smith) a very neat Duckwing; c., Walshaw (willow-legged Pile). *Reds*.—*Cock and Hen* (eight) were all Black Reds. First (Jennings) very smart, shapely, and brilliant in colour. Second (Walton) not so good in carriage of wing as the winners. Third (Calladine) a smart cockerel, failing in colour on breast; c., Hore. *Cockerel and Pullet* (eight).—First and plate for best pen of Bantams (Walton), a very stylish reachy pair of Black Reds rightly placed. Second (Morgan) very good Black Reds again. Third (Haigh) very neat Black Reds; c., Firth (Brown Reds). *Duckwings*.—*C k and Hen* (seven).—First (Walton) a fair pair. Second (J. Smith) a moderate pair, the cock too long in wing. Third Calladine; c., Whitley. *Cockerel and Pullet* (five).—First (Walton) a reachy pair with rather too much feather. Second (Eaton) a neat pullet, but the cockerel carrying his tail too high. Third (J. Smith) smart, but the pullet

failing in colour on wing. *Black Bantams* (seventeen) were all Rosecombs, and a strong class. First (Young) neat in head, bright in colour, and clear in lobe. Second (Clapham) clear in lobe and bright in colour, but rather heavy in comb. Third (Shackleton) very good in lobe; v.h.c., Roberts, Jas. Walker, Charlton, Beanland, Rhodes; h.c., Thompson and Rawnsley. *White Bantams* (eleven) were, with the exception of two unnoticed pens, Rosecombs. First (Rawnsley) a well-known pair. Second another pair from the same yard. Third (Crowther) rather loose in carriage of wing, and a trifle heavy in comb. *Sebright* (eleven) not a wonderful class. First (Lloyd), second (Bracewell), and third (Richardson) were all good Silvers well placed. *Any Other Variety* (twelve) were mostly Piles of moderate quality, which should not, we think, have been admitted to this class. First (Walton) willow-legged Piles. Why awarded a prize in this class we fail to see; the cocks might have competed singly in the Game Bantam classes. Second (Walker) yellow-legged Piles again. Third (Walshaw) still another pair of Piles, willow-legged this time; h.c. (Crewe) Japanese, which should have stood first in our view of the matter; h.c. (Cannan) more Game, as also were Aspdon and Fell.

TURKEYS (five, with one pen empty) were all good pairs. First, Bulman; second, Braithwaite; third, Hope; h.c., Rawson.

GEESSE (twelve) a good class. First (Rawson) a fine pair of Greys. Second (Snell) large Greys again. Third (Dodsworth) very large Whites; h.c., Braithwaite (Whites); Smith & Sutcliffe, and Shackleton, both Greys; c., Snell & Cannan (Whites); Atkinson (Grey).

DUCKS.—*Aylesbury* (thirteen) were a good class. First, Gunn; second, Snell; third, Mallinson. *Rouen* (fourteen) except the winners were only a moderate class. First (Newton), second (Mallinson), and third (Rawson) were all good pens very similar in merit. *Any Other Variety* (ten).—First, Gunn; second, Parkinson; and third, Bygott, were all Pekins, the first best in carriage and colour, the second failing most in carriage.

PIGEONS.—*Pouters* (six).—First (Townend) a Red Pied; second (Popplewell) a Blue Pied; third (Kirby) a White; c., Mawson. *Carriers* (six).—First, Lomax; second, Townend; and third, Thompson, all Blacks; h.c., Mawson. *Tumblers, Short-faced* (five).—First (Weston) a fine Almond; second (Weston); and third (Mawson) both Almonds also; h.c., Weston (2). *Baldhead or Bearded* (eleven).—First (Watmough) a Blue Bald. Second (R. Woods) a Blue Beard. Third (R. Woods) a Red Feather-legged Beard; v.h.c. (Lund) a Blue Beard; h.c., Watmough, Sharp, Lund; c., Cook and Beal. *Any Other Variety* (thirteen).—First (Fowler) a Red Agate. Second (R. Woods) a Yellow Agate. Third (R. Rawnsley) a Black Agate; v.h.c., Lund, R. Woods (both Red Agates); h.c., Lister (2). *Owls*.—*English* (eighteen).—First (Lister) a Silver. Second (Thresh) a Blue. Third (Rawnsley) Blue also; v.h.c., R. Woods, Thresh; h.c., Carter, Hargrave. *Jacobins* (eighteen).—First (Dale). Second (Holt). Third (Dale) all Reds; v.h.c., Kell; h.c., Collingwood, Kell, Harrison, Dale. *Trumpeters* (four).—But only one appeared—namely, first (Gatty) a Black. *Turbits* (twenty).—First (Kell) Red. Second (Kell) Blue. Third (Carver) a beautiful Silver; v.h.c., Kell; h.c., Popplewell, R. Woods, Dale, Dewhurst. *Fantails* (seventeen) were a good class, all being White. First, Collingwood; second, Laidlow; third, Beldon; h.c., Ward; c., Mawson. *Barbs* (eleven).—First (Harrison) a Black. Second (Roberts) a Black. Third (Thresh) a Dun; v.h.c., Townend (Black); h.c., Lomax, Thresh, Young. *Nuns* (eighteen).—First (Dale). Second (Mawson), and third (Townend) all Blacks; v.h.c., Lomax; h.c., Beldon, Rawnsley, Bell. *Dragoons* (eleven).—First (W. Smith) a Blue, as also were second (Shewell), and third, Close; v.h.c., Shewell, Close; h.c., Smith, King. *Antwerps*.—*Long-faced* (ten).—First (Waterhouse) a Silver Dun. Second and third (Rawnsley) both Red Chequers; v.h.c., Ward; h.c., Lister, Cheesborough; c., Wade. *Short-faced* (twenty).—First (Waterhouse) a Red Chequer. Second (Turner) a Red Chequer. Third (Wade) a Silver Dun; v.h.c., R. Wood and Mawson (both Silver Duns), Lister (Red Chequer); h.c., Firth. *Magpies* (nineteen).—First (Walton) a Black. Second (Kell) a Red. Third (Mawson) a Yellow; v.h.c., Townend (Black), Walton (Blue); h.c., Greenhalgh, Webb, Wilson. *Archangels* (eight).—First Gatty, second Webb, third Rodgers; h.c., S. Sharp; c., Moss. *Any Other Variety* (thirteen).—First (Waterhouse) a Visor. Second (R. Woods) a Domino. Third (Beldon) a Bluetie; v.h.c., Webb, R. Woods; h.c., Gatty, King.

VARIETIES.

PROMPT PAYMENT OF PRIZE MONEY.—Mr. T. W. Anns of Clapham writes to us as follows:—"I beg to record with a great deal of pleasure the receipt from the Secretary of the Bexley Heath Poultry Show on Thursday, December 7th, of a cheque for my sale and prize money. I only wish some of the larger and older shows would take a lesson from this young and rising one."

DONCASTER AGRICULTURAL SOCIETY.—The next Exhibition of this Society is fixed to take place at Doncaster on Wednesday, Thursday, and Friday, June 29th, 30th, and July 1st, 1881.

BELFAST POULTRY SHOW.—We are pleased to learn that the entries for this excellently managed Show are larger than ever this year. Poultry number 415 (of which Brahmas, with eight classes,

contribute eighty). Pigeons 367, and Cage Birds 150, making a total of 932. Not bad for Ireland. The Show opened yesterday and closes to-night. We shall give a report next week.

— **MISS E. SHUTER'S DARK BRAHMAS**.—We learn that Mr. Comyns has recently added to his yards Miss E. Shuter's entire stock of Dark Brahmas. These birds have had a good share of success of late years, and we are pleased that the strain will not be lost by the retirement of Miss Shuter from the list of exhibitors. We trust this retirement may only be temporary, and that before very long we may have the pleasure of seeing Miss Shuter's name in the prize lists once more.

— **THE PRACTICAL RABBIT KEEPER**, by "CUNICULUS." (Cassell, Petter, Galpin, & Co.).—We have had this work for some time on our table. It is prepared with all the care and attention to important details which characterised the companion works on Poultry and Pigeons issued by the same firm. We can heartily recommend it to such of our readers as add Rabbits to their list of pets.

— **ARTIFICIAL INCUBATION AND THE BREEDING AND REARING OF POULTRY**, by H. TOMLINSON. (Simpkin & Marshall).—We have read this pamphlet with much interest. Being from the pen of so old a fancier as Mr. Tomlinson it could not fail to contain many valuable hints. We must, however, confess to a certain feeling of disappointment upon two points. The first of these is that the pamphlet contains no description of Mr. Tomlinson's incubator, beyond a mere general statement; and the second is that we have no details as to the system of breeding adopted by the author. We shall have occasion to refer further to the writer's remarks upon incubation in a series of papers upon this subject, which we shall commence in our new volume. The illustration drawn from Mr. Tomlinson's own prize-winners and poultry houses are perhaps the best part of the work.

— **PHEASANT POISONING**.—For some time past the keepers of the Marquis of Bath have discovered a great number of Pheasants dead on the estate. Naturally it was assumed that some persons had been laying down poison, so it was determined to send their internal organs for analysis, which, on being done, it was discovered that the birds had been poisoned from eating the shoots or leaves of the Yew tree, which are numerous in the plantations. The discovery will involve a serious consideration for those who are breeding Pheasants under the same conditions as exist at Longleat.

— **BATH AND WEST OF ENGLAND SOCIETY**.—An adjourned Council meeting was held at the Charing Cross Hotel, London, on the 8th inst. Mr. Jonathan Gray reported a correspondence which had taken place between himself and the authorities of Cardiff with reference to the Society's meeting in 1882; and the Secretary presented a letter from the Town Clerk on behalf of the Mayor and Corporation, inviting the Society to visit their borough in the year stated, and undertaking to render every possible support in bringing the Show to a successful issue. On the motion of Mr. Gray, seconded by Colonel Luttrell, it was resolved that the invitation from the Mayor and Town Council of Cardiff be accepted, and that a deputation be appointed to visit the town to inspect the proposed sites and make preliminary arrangements, subject to the approval of the January meeting of the Council of the Society.

— **BRITISH BEE-KEEPERS' ASSOCIATION**.—At the Committee meeting of this Association, present Mr. T. W. Cowan in the chair, Rev. E. Bartrum, Messrs. Cheshire, Glennie, Hooker, and Rev. H. R. Peel, Hon. Sec., the balance sheet for November was presented. The total receipts for the eleven months of 1880 being £438 15s. 1½d., and the expenditure for the same period £438 7s. 8½d. The second edition of "Modern Bee-keeping" having been completed by Mr. Cheshire was presented by the Sub-Committee, and it will pass at once into the printer's hands. The diagrams will be published by Messrs. Longman for the Association, and will be placed in the hands of the book trade at the beginning of the coming year. Some further arrangements for next year's work were considered, and February 16th was settled for the date of the next meeting.

— **ROYAL AGRICULTURAL SOCIETY**.—At the general meeting of members of this Society, the Secretary, Mr. H. M. Jenkins, read the

report of the Council, which stated that during the present year the number of Governors and members had been increased by 153, the total number now being 8082. The Carlisle meeting had been remarkably successful, notwithstanding the very unfavourable weather experienced during the last three days; and, although the receipts were not sufficient to cover the expenditure, the Council were enabled to announce that the deficit would not entail any further diminution of the funded capital of the Society, as it could be covered by the surplus ordinary income of the year. The preparations for the Derby meeting next year, which the Council had decided should commence on Wednesday, July 13th, and close on the following Monday evening, were well in hand. The Council had deemed it advisable to restrict henceforth the amount offered as prizes for live stock by the Society itself to a maximum of £3000. The Local Committee proposed to liberally supplement the Society's prize sheet. The Council had under their consideration the very serious outbreak of sheep-rot which caused so much mortality amongst the flocks of the country during the year, and have instituted a practical as well as a scientific investigation into the whole subject. They regretted to observe that foot-and-mouth disease is again prevalent in several districts, after an almost complete immunity from the disease for nearly two years. With reference to pleuro-pneumonia, the Council has the satisfaction of reporting that a considerable diminution in the number of cases, as compared with last year, has been effected by the measures adopted for its extermination.

HEATHER HONEY.

(Continued from page 473.)

It is not easy to give directions for obtaining the best results in Heather honey that shall be strictly applicable to every season and district. In purely highland regions the Clover blooms so late that there is really no interval between the two harvests; but generally it is found that there is an interval of about a fortnight, unless where the Limes bloom so late as to fill the gap. In all cases, however, the result of the earlier harvest is, except where the extractor is kept at work, to fill up the brood combs to the almost total exclusion of the queen from egg-laying. The interval, where such exists, is usually marked by the massacre of the drones—an intimation that the bees are beginning to fear the approach of times of scarcity, and that brood-rearing is no longer persevered in. To guard against this, means must be taken to ensure that no such feeling of scarcity shall exist. The gap, where it exists, must be tided over by steady but slow feeding. This feeding may not necessarily be of an extraneous nature, as the mere uncapping of portions of the sealed stores in the brood nest from day to day will admirably serve the purpose. It is perhaps not generally known that this uncapping of sealed stores is really equal to the best stimulative feeding; for it is the habit of the bees to remove all honey from cells thus damaged by the knife, and of course in doing so they are really being compelled to feed. If feeding be otherwise necessary it should be by means of honey only, so as to avoid the slightest suspicion of having sugar syrup mixed with the honey either of the brood combs or the supers, until at least the work of depriving is over for the season.

Besides securing that, either from natural or artificial sources, there shall be no period of felt-scarcity between the earlier and later harvests, it will be necessary to provide abundance of breeding room during the whole course of the season. Where hives are run for the extractor this is of course abundantly provided for; but where supers are being filled there is, as a rule, no such provision made after the supers are once in their place. The difficulty of removing supers for the purpose of manipulating the frames and the danger of crushing bees in replacing them deter most bee-keepers from the operation. But I think our supers can be so made that they can be removed and replaced almost as easily as a single frame. Instead of having our super trays constructed to hold two and even three rows of sections, they may be made to hold only one row, and instead of wooden laths their bottoms may be of angle tin, thus ensuring their being easily handled and a minimum of propolis. Such cases of sections will, besides, admit of our giving the bees super room more gradually, which is a great advantage early in the season. These trays being so placed that the sections run crosswise to the frames, it is evident that by removing any one of them a certain number of frames below may be reached without disturbing the other trays.

Whether with ease or difficulty, however, we may consider it absolutely necessary to obtain access from time to time to the frames below. Thus the directions I have formerly given as to

"spreading the brood" may be continued all through the Clover season and up to the advent of the Heather. When this time comes it will be sufficient to secure that the whole body of the hive is filled with brood and eggs, so as to compel the bees to store the Heather honey almost entirely in the supers or upper storey. Such may be regarded as general directions, but there are other ways of attaining large results in Heather honey.

Where several stocks are kept it may, for instance, be found very profitable to set aside certain hives especially for this purpose. These might, when the Heather comes in bloom, be greatly strengthened by having all frames with honey only removed, their places being filled with comb of brood from other hives stimulated for the purpose; or swarms may be added to them where such can be procured, or those that stand side by side may be united, bees and brood. In any case the golden rule of bee-keeping must now be particularly observed—"Keep all your stocks strong."

When I kept bees in the low country I was in the habit of removing them to the moors, but not having taken any special care to secure an overflowing population I did not reap any advantage to compensate for the trouble. Were I in such circumstances again I should, before removing them, drive or shake all the bees out of my weaker hives, add the brood to the others, carry them to the moors, and then run in the driven bees, dividing them according to the strength of the stocks removed. All unfinished supers would be piled on these hives, and empty ones added only if there were bees enough to crowd them; or I would, instead of supers, place on some hives an upper storey filled with frames having foundation only. In this way probably the greatest weight of Heather honey might be secured, such frames being afterwards squeezed out; for they would contain neither brood nor pollen, and extracting Heather honey once sealed is beyond the power of any machine yet made.

Friend Paterson of Struan has obtained excellent results from swarms purchased from the lowlands. These, being earlier than his own, have time to fill their hives with brood before the Heather blooms. And it may be worth the consideration of highland bee-keepers whether it would not be most profitable to work their own stocks as far as possible on the non-swarving system, and purchase swarms for increase. Mr. Paterson obviates the late-swarving difficulty in a rather ingenious way. His hives when in full strength contain about sixteen large frames. These throw large swarms, which he puts into hives contracted to ten frames or so, and at once cuts out royal cells, giving a laying queen if possible to the parent stock. His swarms crowding these smaller hives are ready for immediate supering, and the parent stock so rapidly recovers that it, too, is in the best of condition when the Heather comes on. As there are few districts in our country where it is not possible to remove bees to the Heather, I venture to hope that this subject may be widely taken up; and if a few of those who have had more experience of it than myself would come forward and state the results of such experience, it would be the easier to frame a code of rules bearing on the matter.—WILLIAM RAITT, *Blairgowrie*.

COMB DESTROYERS.

WAXMOTHS, GALLERIDÆ, WAX MITE.—Upon turning up a skep it is quite usual to find upon that part of it which rests upon the floorboard a few small whitish caterpillars about two-thirds of an inch in length; these are the larvæ of wax moths, of which not unfrequently more than one species are present. A further search will generally be rewarded (?) by the discovery of some small white baggy cocoons under the protection of which the chrysalids of the same insects are passing towards moth-hood. These creatures are only capable of working serious mischief to the bee itself where the latter is in the hands of the ignorant or negligent; but they should nevertheless in all cases be diligently sought out and mercilessly destroyed, as stock combs—i.e., combs removed and kept in store for future use, are liable to be wrecked by them even after due precautions have been taken.

On a moonlight night in the warmer weather the female *Galleria* may commonly be seen flitting rapidly about the hive door in order to gain admission, so that her eggs may be deposited on the combs; or she, having been baffled by the guards, may be noted seeking some crevice in the hive itself as the best "opening in life" which she can obtain for her prospective young ones. The bees, with that instinct which as much outleaps our comprehension as it excites our astonishment, appear perfectly to understand that the exclusion of the *Galleria* is a necessity of their well-being; but the nocturnal moth has in the gloom an advantage over the defenders, for the former, a night-flying insect, can see much more clearly in a very weak light than can the bees. If a

moth be dropped into a hive "the rapid dispatch" that it receives at once tells the tale of the fate of those that are grasped as they run the gauntlet. An entrance is, however, gained, sometimes even in strong and often in weak hives. The moth within with wondrous quickness deposits the eggs, from which in three or four days in a warm temperature emerge minute grubs, the first care of which is to spin over themselves tubes of gossamer, from which the head protrudes, and the work of eating the material of the comb at once begins. These larvæ are of dirty white colour, and have very long characteristic bristles standing out from their sides much like cats' "smellers" in general arrangement. These bristles retain the insect in the centre of its tube-like web, and not only act as a protection in preventing the bees from getting directly at it, but hold it in the tube, even if the direction of the latter be perpendicular, without any effort on the insect's part. These hairs, nevertheless, admit of easy progression by that segmental contraction which all must have noticed in the caterpillar. Those that find their quarters on the floor do but little mischief, as they reach out after the débris of wax scales and cappings, always dropping in a hive in which breeding is in rapid progress, and the necessary comb-cleaning and repairing produces a shower of chips which provides them all necessary sustenance. But the case is far different with those tunnelling in the very midrib of the combs; as they progress, their covering tube is elongated, while into its fibres are worked the dejectamenta of the insect itself. They seek out pollen cells and bore at their base, and pass through and destroy many of the grubs, if they do not actually eat any part of those that lie in their path. The bees find difficulties, as we have already seen, in removing the creatures protected by their web-like trail; but in strong colonies where all the combs are peopled, the grubs are promptly discovered and cut bodily out, repair quickly following their ejection. It is only in weak, queenless, or discouraged stocks that the wax moth has a chance of working much mischief; but here often it will so carve and weaken the combs that they will fall and become a complete prey to the invader, which will ere long bring them to a shapeless mass of grubs, cocoons, débris, trail-web, and uncleanness. From what has been seen it is clear that the cure for the wax moth is "strong stocks," while combs removed from the bees must, in the absence of their natural defenders, receive some protection. Combs exposed to a freezing temperature will have the eggs of *Galleridæ* within them destroyed, while the fumes of sulphur will have the same effect. They should now be well covered in a box until the season has advanced too far for the moth to be abroad, when all will go well. Combs partially destroyed may yet be of assistance to a swarm, but in this case all webs should be cut out. Those who know the value of foundation will not, however, be likely to adopt this course.

After three-weeks feeding the grub discontinues eating, and seeks a place of safety in which it may build its shroud and await its transformation. It would appear that the time passed as a chrysalis greatly varies according to the temperature and season, those spinning late in autumn remaining as nymphs the whole of the winter. It is thus fortunate that they are not produced at the time the bees are unable to act on the defensive.

Besides the wax moth, comb, especially if it have about it some nitrogenous matter, is liable to be attacked by one of the *Acaridæ*. They sometimes locate themselves in comb honeyput by for market, and work sad mischief. Their presence may be known by a collection of dirty yellowish coarse dust, looking not unlike the result of the labours of the cheese mite. If this be examined microscopically it will be found to consist of dejectamenta, comb-scrapings, and exuviae crammed with the insects in various stages. They are, of course, produced from eggs, and have at first—i.e., in their larval stage, six legs only, but after five or six moults these have increased to eight perfectly developed ones. The abdomen is unsegmented, and very long bristle-like hairs keep the insects sufficiently free of the mass in which they pass their existence. They are nearly colourless, and when fully grown measure about the one-fiftieth of an inch in length. Some specimens of abnormal combs which I valued have unfortunately been considerably injured by this *Acarus*.—F. CHESHIRE, *Avenue House, Acton*.

IMPROVED STRAW HIVES.

ON page 474 "A. P." suggests some improvements in the straw hive so that comb foundation may be used in them. This may be accomplished by constructing them on the Stewarton principle. I think that no straw hive should have a fixed top. I made one with the top separate, and secured it to the sides with string. I could then take out the comb with the greatest ease without breaking it by turning the hive on its crown, cutting the string, removing the cross sticks, running a knife round the sides, then lifting off the hive, separating the comb from the crown, and

letting the comb recline on a dish held by the side of it. There is no occasion to touch the comb with the hands when emptying the hive. This moveable top then suggested the double straw hive. I made another 15 inches wide inside that would fit in it, thus forming a hive with a double wall. The bees in this hive swarmed ten days sooner than my other two, which I attribute to its being warmer, as the others had only covering on the top. It can be used as two hives in the summer.

The next step was to make a bar-frame straw hive 16½ inches wide, holding five frames 14 by 7 inches. This hive is in two parts. Where the frames are it is 8 inches deep, the top part being 4 inches when fixed together. I call it the improved Pettigrew hive 16½ inches by 12 inches. The season being so bad here in Yorkshire, a first swarm has only filled the frames and one side of the bottom part of the hive. The top part I have filled with warm material. The other I have made is a bar-frame hive. The frames are 14 by 9 inches. It holds five frames; the side combs are also moveable. This hive I have tried with natural foundation, as I have no artificial. The mode adopted in fixing is very simple. The joiner made the top bars with a groove a quarter of an inch wide and deep. One side of the groove is in the centre of the bar. I placed the foundation in the groove and fastened it with a strip of wood three-sixteenths of an inch square, with one corner taken off to act as a wedge. It answered admirably. Those who would like to try comb foundation in these straw hives should try this plan with bars. After the foundation is fixed in the bars secure them in the crown of the hive at the proper distance.—A GARDENER.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.
Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1880.	Dec.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Sun.	3	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
		30.507	47.9	45.3	N.W.	43.0	52.0	41.8	68.1	33.4		
Mon.	6	30.467	48.8	47.9	W.S.W.	43.8	52.8	46.0	63.2	42.2		
Tues.	7	30.611	47.8	46.7	N.N.W.	44.7	51.3	45.9	56.7	42.3		
Wed.	8	30.616	47.8	46.7	W.	45.1	50.3	46.2	52.9	39.6		
Thurs.	9	30.434	47.7	46.6	W.N.W	45.2	52.0	45.5	63.0	40.0		
Friday	10	30.287	51.4	49.4	W.	45.0	56.5	43.3	87.0	38.7		
Satur.	11	30.324	36.4	35.8	N.N.W.	44.7	50.3	34.3	56.2	30.6		
Means.		30.434	46.8	45.5		44.5	52.2	43.3	63.9	38.1		

REMARKS.

- 5th.—Mild with good deal of cloud; sunshine at intervals, and very fine sunset.
6th.—Fine pleasant spring-like day.
7th.—Cloudy; not much sun; fair and mild.
8th.—Fair but overcast; rather cold wind.
9th.—Fine and mild sunshine in forenoon; moonlight night.
10th.—Slightly overcast in middle of day, otherwise very fine and mild with bright sunshine; lunar halo 11 P.M.
11th.—Fair and much colder with good deal of cloud; bright moonlight evening. Extraordinarily mild, the temperature about the same as the average of October, and actually warmer than some weeks in October of this year. Barometer very high and no rain.—G. J. SYMONS.

COVENT GARDEN MARKET.—DECEMBER 15.

Large arrivals of Canadian Apples this week, but the fruit has been seriously injured by frost, consequently much has been sold at a heavy loss. Trade very quiet, with a demand for good samples of Grapes only.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines..	dozen	0 0 0 0
Cherries.....	¾ lb.	0 0 0 0	Oranges	¾ 100	0 0 0 0
Chestnuts.....	bnshel	12 0 16 0	Peaches	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen ..	dozen	2 0 3 0
Filberts.....	¾ lb.	0 0 0 0	dessert	dozen	2 0 4 0
Cobs.....	¾ lb.	2 0 0 0	Pine Apples	¾ lb	1 0 2 6
Gooseberries ..	½ sieve	0 0 0 0	Plums	½ sieve	0 0 0 0
Grapes	¾ lb	2 0 5 0	Walnuts	bnshel	0 0 0 0
Lemons.....	¾ 100	12 0 18 0	ditto	¾ 100	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms	dozen	1 0 to 1 6
Asparagus	bundle	0 0 0 0	Mustard & Cress ..	punnet	0 2 0 3
Beans, Kidney	¾ lb.	0 0 0 0	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	pickling	quart	0 0 0 0
Broccoli	bundle	0 9 1 6	Parsley.....	doz. bunches	6 0 0 0
Brussels Sprouts..	½ sieve	1 9 2 0	Parsnips.....	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Peas	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	¾ 100	1 6 2 0	Kidney.....	bnshel	4 0 4 6
Cauliflowers	dozen	0 0 3 6	Radishes....	doz. bunches	1 6 2 0
Celery	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 0
Coleworts....doz.	bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 6	Scorzoneria	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale	basket	3 0 3 6
Fennel.....	bunch	0 3 0 0	Shallots	¾ lb.	0 3 0 0
Garlic	¾ lb.	0 6 0 0	Spinach	bushel	3 0 0 0
Herbs	bunch	0 2 0 0	Turnips	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 2 0 0



23rd	TH	Sale of Orchids at Mr. Stevens's Rooms.
24th	F	
25th	S	CHRISTMAS DAY.
26th	SUN	1ST SUNDAY AFTER CHRISTMAS.
27th	M	BANK HOLIDAY.
28th	TU	
29th	W	

CHRISTMAS.

"Deck the walls with Holly! welcome fun and frolic!
 Ever when December comes to sadness bid adieu
 Cold the winds and cruel; pile the fire with fuel;
 Eagerly to Christmas give a greeting warm and true."



STRONG faith have I in the virtue of a good hearty laugh as a promoter of health both of mind and body. What more fitting, then, to dispel the gloom of short days and murky skies, to cheer the sadness inseparable from the last days of the dying year, than the bright time-honoured festival of Christmas?

From how many sources and from what a variety of things does it derive its brightness! As year after year glides away, and the hand of Time lays a firmer grasp upon us, the mind develops a growing tendency to retrospective views of the sunshine and shadow that chequer the swiftly fleeting days of our lives; and those of us who wisely resolve to take bright and cheerful views of things, know full well that sadness and sorrow come to all of us sooner or later with such depressing effect as would be difficult to encounter were it not for the cherished feeling of hopefully looking forward that has become inherent in our nature. Well, then, for this especial reason, as well as for many others, we hail the coming of Christmas once again, and make especial preparation to enjoy it as a time of family gatherings, of genial social intercourse that shall witness a strengthening of old friendships and the beginning of new; for Christmas is the sworn enemy of selfishness, and a true promoter of kindly feeling.

One of the brightest Christmas features is wanting this year—we have no berried Holly. In the woods here Holly abounds; there are several thousands of trees but hardly a berry, much to our regret, for we have no substitute for it, and shall miss the gay effect of the bright scarlet berries both in our church decorations and our houses. The birds will miss them still more should the soil become frostbound for any length of time, and they are driven to seek food among the hedgerows and shrubs. *Iris foetidissima* has an abundant crop of its pods of scarlet berries, with which much may be done to atone for the barrenness of the Holly. In skilful hands this *Iris* is one of our most valuable hardy plants for decorative purposes. The pods are borne in clusters upon the ends of long stems springing out of and well above the long dark green flag-like foliage, over which the weight of the fruit causes them to bend gracefully. When used in decoration we have only to copy Nature to be successful, arranging its foliage in pans of damp sand with the berry-bearing stems disposed among them

precisely as they grow. But it is not merely for our Christmas decorations that we regret the scarcity of Holly berries. Many a poor family will be robbed of the humble Christmas feast, for which the sale of Holly usually affords the means, as it often passes through the hands of two or three keen dealers before it reaches the London or Brighton markets. It is indigenous to the soil of this part of Sussex, and is usually collected from the woods and the hedgerows of garden and field, as well as from the thousands of bushes on the wild waste lands of Ashdown Forest, so that the labourer may contribute his bundle or two, and the small farmer his cartload to swell the huge waggonloads which are usually seen proceeding Londonwards along the main roads tending in that direction. Occasionally some adventurous spirit, having collected enough of an unusually choice kind to load his market cart or van, has set off with it to Covent Garden, a distance of from thirty to forty miles, and will long afterwards proudly tell of the adventures and result of the journey. More than once has a certain shrewd man told me how he refused £5 for his cartload, and cleared 30s. more by selling it in small quantities.

Mistletoe is not at all common in this neighbourhood, nor have I ever seen such clusters of it in Sussex as there used to be upon the grand old Apple trees in the orchard at Provender near Faversham. No pruning of root or branch they ever had, and yet for several generations they had borne Apples and Mistletoe in more than sufficient abundance for the wants of a large family. A single tree would often yield twenty bushels of fruit, so that a few failures had very little effect upon the regular supply. The old trees were always as attractive at this season of the year, with their huge mossy boles and large Mistletoe boughs, as they were in spring with their thousands of pink-tipped blossoms, and in autumn with their rosy-cheeked Pearmaines or yellow Golden Pippins, some of which were always kept in reserve to be roasted for the wassail bowl on Christmas eve. Such trees are not common, nor dare I venture to advocate the planting of standards; but my object in mentioning them is to try and induce everybody to introduce something more than trim keeping and high culture into their gardens—to impart features of lasting interest, objects of perennial beauty, elegant or picturesque, that cling to the mind and are cherished there among many a sunny memory and dear association. Plants and trees of an ordinary type do not usually effect this, and yet many of those which we recall are neither very "rich nor rare." The Cork Tree at Linton, the Tulip Tree at The Mote, the Beeches at Chatsworth, the Traveller's Joy at Pentillie Castle, the Spanish Chestnuts at Maresfield Park, the Scarlet Oaks at Alton Towers, the Lucombe Oaks at Carclew, the Ash trees at Pencarrow, the *Pinus insignis* at Lamorran, are all sunny memories upon which we love to dwell. But I must not further indulge in what to me are pleasant reminiscences, but will conclude with a hope that pleasant thoughts and happy moments may be fully enjoyed by every reader of the Journal as they are spending

"A MERRY CHRISTMAS."

—EDWARD LUCKHURST.

SAWDUST FOR PROPAGATING.

IN reply to your correspondent "KITCHEN GARDENER," I have to say that all plants rooted in sawdust here have taken with singular rapidity to any soil or mixture of soils in which they

have been potted. They root very quickly and surely, forming a whorl of strong roots, from which the dust is easily dislodged by a tap or two on the stem of the cuttings. When this does not do it they are rinsed in tepid water. It may be stated that we have a good command of bottom heat, and that the dust is laid firmly on the slates to the depth of 4 inches and is kept constantly saturated with water. To-day (December 7th) we have inserted cuttings of *Nepenthes sanguinea*—not to be risked in any uncertain quarters—and *Dracæna Goldieana*, all in sawdust fresh from the mill.

We also use sawdust for plunging Pines in over heated chambers, and were to-day clearing out a house of Pines, from which we have been cutting fruit for the last two months. The dust we are turning out was placed in the pit the winter of 1878, and we find it so fresh and free from fungi that, were it not that we had brought forward fresh dust, we should have continued employing it for another year. No other plunging material is so clean, free from woodlice and worms, and none so easily plunged in. Not only so, but the Pine roots were found rooted through the pots into it, and we never before saw such a network of roots as were the balls: they looked like a ball of living fibre. If there is an objection to the dust for this purpose it is that it becomes rather dry; but any evil consequences arising from this condition we counteract by causing the water to run well over the rims of the pots when they are watered. This keeps the dust round the pots quite damp. The best swelled Pine for its size we ever grew was in this bed. It was cut fourteen days ago, was seven pips deep, and weighed 8 lbs. all but one ounce, while others were 8 lbs. and one 9 lbs., all in 11-inch pots, and cut within the last month. With a good command of bottom heat we should never think of going far afield for spent bark or cocoa-nut fibre for plunging Pines in if sawdust could be had, and it can easily be obtained by anyone near a sawmill. That used here is from fresh larch, spruce, Scotch fir, oak, ash, &c., all mixed together.—D. THOMSON, *Drumlanrig*.

ASPARAGUS FAILURE.

MR. IGGULDEN will be surprised when I tell him that the garden where I grew my Asparagus is not drained at all except the walks, where the drains are 5 feet deep. I have misled him by saying the ground selected was wet. I should have said that the water takes a long time in percolating through the ground in wet weather, and the district is a wet one. The garden slopes towards the east, and at the lowest portion there is a nearly perpendicular fall of 25 feet into a valley. I have never found the subsoil waterlogged, but when the soil is wet it cannot be worked. It is ridged in winter and forked down in spring as wanted, and most of the garden receives every winter a dressing of screened ashes. Lime is applied when I think it is required.

The Asparagus borders, with clinkers for drainage, I made nineteen years ago, and the last Asparagus beds I dug up on the 1st of July, 1878. I then commenced preparing for growing Asparagus on the French system, the distance being 3 feet from plant to plant and 4 feet between the rows. The depth of soil in the Asparagus border was about 2 feet. No shale or subsoil while trenching is going on is ever brought to the surface on any account. The subsoil is broken up as deeply as a man can drive his pick in; it remains at the bottom of the trench, and is covered with manure. I have discontinued the use of salt for many years as a top-dressing for Asparagus beds, as I found it rendered the beds too wet. Seaweed I consider the best of all material for top-dressing Asparagus beds on light sandy soil. I thank Mr. Iggulden for his courteous reply, which I have read with great interest.—JOHN NUNNS, *Wimbledon*.

GALVANISED WIRE AND FRUIT TREES.

MANY letters were published on this subject in the last volume of the *Journal of Horticulture*, and the opinions of correspondents were so widely divergent that I was requested by Dr. Hogg to examine the whole question, and to conduct some experiments, with the object, if possible, of finding a basis on which the views of the different writers are reconcilable. Until the late discussion there were many, and amongst them horticulturists of high repute, who entertained the opinion that galvanised wire was not injurious to fruit trees. This opinion was founded on experience, and those who had employed the wire successfully for more than a quarter of a century had reasonable grounds for the conclusion they arrived at on the subject. For a number of years I have had experience with this wire in gardens, and I have never until the present year perceived the slightest injury to the shoots or branches of fruit trees when in contact with it. Like "C. P. P.," I attributed the injury that was experienced by others to too tight tying

or abrasion. That injury has resulted from mistakes or accidents in these respects cannot be doubted, but I am now perfectly convinced that they are quite inadequate to account for the serious damage that has occurred to trees under the charge of skilled and careful gardeners. Mr. Long of Wakefield and Mr. Simpson of Wortley, among others, adduced evidence to the effect that shoots of Peach trees that were not tied at all, but which simply rested on the wire, were injured. I have found the same results in some carefully conducted experiments, and I must dismiss the tight-tying and abrasion theory as quite insufficient to account for the evil in question.

An Essex correspondent attributed the recorded instances of injury to frost in combination with unripe wood, as such wood was affected when in contact with cold iron, and that paint or any covering to the iron was remedial in proportion to its non-conductibility. Against this theory Mr. Simpson gave a reply that was conclusive, for the trees under his charge were ruined in a house which the frost did not enter, as was proved by the preservation of tender plants in the structure; also trees that had been secured to well-painted galvanised wire and unpainted copper wire for a dozen years had received no injury whatever. Mr. Long sent examples of wood to the Editors, some of which had been injured in winter and some in summer, the latter being the worst. Mr. Crowley of Croydon found that most if not all the injury was done in summer, the foliage and tendrils of Vines turning black when they touched the wire. I also had negative proof last winter, and positive proof this summer, that extreme cold is not the cause of the evil. I visited a garden in which the mercury of the thermometer fell below zero on several nights, and after minute examination I could not find a trace of injury to any portion of the fruit trees that were secured to unpainted galvanised wire, although some of the fruit spurs were killed by the frost. That is what I call negative proof. The positive proof is that the laterals of Vines under glass which I attached to some wire in June were very seriously injured during the summer months; in fact the damage they sustained in six weeks, ending with the close of July, was far greater than they have sustained in twice the time that has elapsed since. The evidence, therefore, against the "cold" theory is overwhelming.

Mr. Wm. Taylor contributed an excellent and suggestive letter in an endeavour to aid in the solution of the problem. Zinc he recognised as a very sensitive metal, and might be acted on by some water so as to render it noxious to vegetation. He adduced evidence of zinc shortly rendering water undrinkable, and also hinted that the rain falling through an impure atmosphere might bring down a chemical agent on the zinc and render it noxious to vegetation. I thank Mr. Taylor for that hint, for a reason that will be hereafter stated. Although this correspondent had galvanised wire obtained from different sources, yet in no case had it proved injurious; therefore the pure water of Longleat, even when in contact with zinc, is not dangerous to vegetation. But Mr. Woodcock of Sheffield adduced striking proof of the effect of the water of that town on zinc, which crumbled off the wire like powder after having been kept moist for a week. It is noticeable, too, that in and near that town injury to Peach trees has been very severe, and much galvanised wire has had to be painted to save the trees. It is not at all improbable that some water employed for syringing may have had an injurious effect in combination with the zinc on the wire, yet I have this summer found decided injury result to Vines that have never been syringed.

Another correspondent, "T. H.," states that Vines and Peach shoots, also Melons and Cucumbers, trained to well-painted galvanised wire sustained no injury whatever, but when some new wire was put up and not painted it "attracted the lightning," and great damage resulted to the growths in contact with the wire. Another writer takes this view of the case, for he states the trees have suffered so much that all the wire has been thickly painted to "prevent injury by electricity." This view of the question may be worth a little examination, yet at the same time a formidable difficulty arises at the outset—namely, electricity is not a local agent, while the injury resulting from the use of the wire is certainly not general, but on the contrary, as I shall be able to show, is to a very marked extent local.

It is generally admitted that electricity is universal as an agent of great force affecting all kinds of matter. Dr. Franklin supposed that all terrestrial subjects were pervaded with electricity; but if the equilibrium were destroyed, as it is by a variety of causes, one part of the excited body, the positive, contained more than its natural quantity of electricity, and the other part less—the negative. When one body positively and another negatively electrified are connected by a conducting substance, the electricity passes from the positive to the negative body and the equilibrium is restored. Granting for the sake of argument that the branch

of a Peach tree is the negative body, and something, it matters not what, to which the wire that touches it is connected, is the positive body, it seems to follow that the electricity would pass to the Peach branch to restore the equilibrium, and, as many think, cause injury. If the current is powerful enough it would no doubt cause injury, as is the case with lightning; but is it sufficiently powerful? I think not, and it is beyond all doubt not general, as it must be to sustain the theory. But that is not all. Oxidation appears to be of great importance in the excitation of electricity both by friction and in the voltaic battery. Now let us look at the Peach trellis. In all the communications re-

ferring to this subject it is the new unoxidised wire that is stated to be the most injurious, the old or oxidised wire having little or no deleterious effect on the trees. That this is really so I shall be able to adduce pretty conclusive proof. The electricity theory, therefore, fails on the two important principles that ought to sustain it—1, Electricity is universal, while the injury supposed to be connected with it is only local; 2, Injury does not follow where the wire is much oxidised, while oxidation is essential to the excitation of electricity.

This subject is alluded to more fully because I have received several private letters, the writers of which agree with those



Fig. 101.—*DRACÆNA TELLINGII*.

published that the evil in question is caused by electricity. The question now stands thus—the tight tying or abrasion theory fails; the cold theory fails; the electricity theory fails, and we must look in another direction for a solution of the problem.—
J. WRIGHT.

(To be continued.)

DRACÆNA TELLINGII.

THE narrow-leaved *Dracænas*, so well suited to table decoration, were referred to on page 527; and the other type—namely, those possessing broad leaves and a bold effective habit—now merit some description. These are admirably adapted for general decorative purposes, and when well grown and the foliage highly

coloured there are no plants more imposing, either in groups or singly. As in the other section, we owe several of the best forms to Mr. Bause's skill in hybridising, and the one represented in the engraving (fig. 101), kindly supplied to us by the General Horticultural Company, is scarcely excelled in attractiveness by any other in commerce. The specimen from which the drawing was prepared not only possesses all the distinctive characters of the variety, but also indicates what can be obtained by skilful culture, and is a fair representative of the *Dracænas* grown at the Melbourne Nurseries, Anerley.

D. Tellingii is the result of a cross between *D. ferrea* and *D. regina*, but is strikingly distinct from and superior to both parents. It is of bold, erect, and vigorous habit, with large elliptical or

oblong leaves, about 6 inches in breadth, and strongly recurved at the points, in the style of *D. voluta*. The colour is a deep bronzy green with a rosy margin, becoming crimson in the older leaves, and the stout leafstalks are similarly coloured. In addition to these qualities the firm thick texture of the foliage renders the plant more than ordinarily durable—a character of inestimable value as regards its employment for the decoration of houses. Six as handsome *Dracenas* as could be desired of the type under consideration is the subject of the engraving, *D. Knausei*, *D. Barroni*, *D. Gladstonei*, *D. Elizabethæ*, and *D. Imperator*.

HARDY FRUITS—PEARS AND APPLES.

As an old fruit-grower I have been greatly interested in the articles which have recently appeared in your paper, especially those by "WILTSHIRE RECTOR," Mr. Luckhurst, and "CHESHIRE RECTOR." The report of Mr. Luckhurst on thirty-six varieties or more of Pears during the past season cannot fail to be highly instructive to the willing learner.

I grow most of those Pears, and several others also, and I am glad to have the opportunity of comparing the experience of other gardeners or amateurs with my own. It is, however, important in all fruit-growing to bear in mind the effects of locality and soil on the produce. Take, for instance, that beautiful Pear the Chaumontel. In Mr. Rivers' catalogue it is stated that in some gardens it is little better than a baking Pear when grown as a standard. "It evidently requires the warm sea air." Judge of my surprise when asking a neighbour of mine, a lady who with her husband takes a great interest in her garden, which was her favourite Pear of all they grew. She replied, The Chaumontel. But, I asked, "Can you depend upon a crop?" knowing that in spite of the high authority which declared warm sea air to be necessary for it, this Pear was grown by my friends in a garden as an espalier many feet above the sea in dry mountain air—in short, on the eastern slope of the Malvern Hills. The lady replied that they generally had a crop, and she attributed it partly to the precaution that was taken of giving the trees while in bloom, and especially if frost appeared to be coming, a bucketful each of hot water after sunset. There grew in this garden of my friends two years ago a Pear tree, standard or pyramid, the fruit of which was to my taste the richest I ever met with. I was not singular in my choice, for the dozen fruits which were sent me as a present, together with several varieties that were familiar to me, were quickly selected from all by members of my family, who unanimously declared them to be the best they ever tasted. The varieties with which they were mixed included Marie Louise, Pitmaston Duchess, the Lemon Beurré, the Pine Pear, Seckle, and others ripening about the same date—November. Unfortunately all the dozen but one were consumed before I thought of learning the name of this treasure. Its shape was between that of an Orange and a Lemon, and it had the peculiarity of being somewhat evenly divided on the surface into segments like a Melon—not, of course, so deeply or evenly marked as that might imply, but this description illustrates my meaning.

Last year I visited my friend's garden too late, and this year too early, to discover the fruit and make out its name, but I have obtained grafts of all his best Pears, and they are becoming strong enough to fruit ere long, when I shall carefully watch the fruits. The only specimen that I saved I took to Mr. Smith of Worcester, and his foreman of the fruit department could not name it with any certainty, but thought it resembled Zéphirin Grégoire. I purchased several trees of this kind, one with numerous buds, and fruited it, but unfortunately the Pears were stunted and of a different shape from the curious specimen which I have described.

One of my friends, an enthusiastic admirer of Gansel's Bergamot, declared it must be of that variety. My friend, however, has no wall for his Pears; all are standards, pyramids, or espaliers, and most persons seem to agree that Gansel's Bergamot will only succeed against a wall. If any of your readers can suggest what this Pear can be I shall be deeply grateful. I should be very glad also to know the experience of others with regard to Knight's Monarch and Beurré Rancee. I have healthy trees which I have had in Cheshire, Warwickshire, and now in Worcestershire. They have never fruited with me. They are pyramids, and I believe on the Quince.

I was in London last month, and on passing through Covent Garden Market and to some of the fruit shops at the West End I tasted both Pears and Apples. Decidedly the best Pear at the time—about November 28th—was the Chaumontel. In this selection I was supported by five friends. If it had been only a trifle more melting it would have been perfect. In flavour, and juiciness, and size it was everything that could be desired.

In a shop in the West End I saw a round basket of Apples beautifully displayed. They were ticketed "Calville Apple." They were, to use the expression of my gardener, "pretty as paint," of a rich semi-transparent golden pink, and the modest price asked was 1s. each. As the finest Newtown Pippins were on sale in the same shop for less than half the money I was curious to learn why these should command so high a price. I was politely informed that they were greatly esteemed at dessert, and having to be brought from the south of France the carriage was expensive. I thought how it would gladden the hearts of my parishioners in Worcestershire if they could sell Apples for 1s. each, and I carefully brought the name, and also bought a single fruit to show to my neighbours. I see English catalogues describe the Calville Blanche as an Apple for tarts unless grown under glass, when it becomes a first-class dessert fruit. Surely it would pay to grow it in this country under glass, and it would be not only more profitable but a more certain crop than Peaches or some other fruits.

A word about an Apple called The Malster. "CHESHIRE RECTOR" describes this in your issue of, I think, December 2nd, as hardly inferior to the Newtown Pippin. As I look upon this American Apple as the *ne plus ultra* up to the present time I turned immediately after reading the Journal to the "Fruit Manual" to see the description of it. No such Apple as Malster appears in that book. That which I possess is the fourth edition, published 1875, and which I have usually found so full and complete. I turned to catalogues. In several it is omitted, unless it has some synonym which I do not know. At last I found it. The description is not inviting for a rival of Newtown Pippin. Here it is—"Malster, K.D., large-sized, greenish, of good quality, either for cooking or eating, and will keep well until January." This is only feeble praise compared with that given to many others in the same catalogue. I shall certainly try this Apple, and hope it will answer the high opinion expressed of it. Is it known by any other name?

One more Apple I will allude to—the Ribston Pearmain. It is described as having the true Ribston flavour and tender flesh. If this Apple really answers its description it will prove a valuable acquisition. Have any of your readers tried it? I intend to do so, and, if you will allow me, to report on results.—WORCESTERSHIRE VICAR.

THE BEST TEA ROSE.

WE grow many Tea Roses here, and we are annually increasing the stock, which affords an opportunity of comparing the merits of different varieties at all times of the year, and for a perpetual bloomer of the finest description there is none to equal Niphetos. Some of our plants of it produced a constant succession of buds since last December, and they are growing and budding now in a cool house as if it was June. This is their continual habit—they never rest or stop growing or flowering. The buds are of that choice creamy white colour, and long, tapering, delicate shape which please all arrangers of cut flowers. Next time I plant a dozen Tea Roses half of them will be Niphetos, and I shall always employ them in this proportion.—J. MUIR, *Margam*.

CHAPTERS ON INSECTS FOR GARDENERS.—No. 16.

NEW SERIES.

TO the young student of natural history, and to some of our gardeners who take an interest in entomology, the circumstance is notably singular, that some larvæ attain their full size with rapidity, while others are very tardy in their growth. The huge caterpillar of the Privet Hawk Moth is ready to become a pupa in nine or ten weeks after it has chipped the egg-shell, and there are other similar instances amongst the Lepidoptera. But beetle grubs not a few, which live concealed in wood or earth, require two or three years to pass before they enter on their period of quiescence. Hence, in the case of some species the history may at first seem perplexing. Take a species that occupies three years to complete its growth—that is, eggs deposited in 1877 produce perfect beetles in 1880, we might then assume that beetles come forth only triennially. It is not so actually, because in any particular year we should discover larvæ of various stages, and each year a brood is produced, in numbers varying doubtless according to the weather and other influences.

The duration of life sometimes shows considerable differences in the same division of beetles. We have noticed the hard-bodied beetles, such as the Elaters in the division Prioerata, and these are generally longer-lived than the soft-bodied species called the Aprosterni, a few of which we now mention. Many of these beetles are both abundant and conspicuous in gardens, and as a group they may be spoken of favourably, since they are rather

serviceable than mischievous like their tough-hided brethren. The "soldiers" and "sailors" do not leap in the manner of the skipjacks, but they run rapidly up the stems and over the leaves. They are popularly named, not very appropriately from their colours; the "soldiers" having reddish-yellow wing-cases and paler legs, the "sailors" black or bluish-black wing-cases and red legs. These belong to the genus *Telephorus*, of which there are about twenty British species. Their soft structure is, however, not an indication of pacific habits, for the beetles are carnivorous in habit, and should two of them meet they will engage each other. Occasionally the combat is carried on until the weaker is conquered and then devoured, but more frequently after a scuffle they separate to seek prey more to their appetite. They feed particularly upon the smaller insects that haunt flowers during the summer. Some of the larvæ are unknown, but those that have been discovered live under the earth, feeding upon worms and small slugs from September to April, when they enter the pupal state.

The curious and rather local glow-worm (*Lampyrus noctiluca*, fig. 102) is fond of sheltered and humid places, such as lanes near woods. In gardens this insect might be encouraged for the useful habits of the larva; but it is not easy to establish a colony of glow-worms, and several failures have been reported. The female is a larva-like creature with neither wings nor wing-cases, and it emits a greenish blue light, the nature of which is still doubtful. This is certain, that it is under the control of the insect. The male, which has wings and flies at eventide, possesses two minute luminous dots on the head. The larva of the glow-worm also sheds a light, feebler than that of the female beetle, but which upsets the absurd theory that the latter wingless insect has this luminosity in order that the male beetle may discover it. At the tail of the glow-worm larva is an appendage like a foot when it is partly drawn in. When thrust fully out it appears as a brush, and it is used by the larva to clear itself from the slime of the snails upon which it feeds; and since this larva makes an especial attack upon these in the spring just about the breeding time, it must have an influence upon their multiplication wherever the glow-worm occurs commonly.

The beetles of the genus *Clerus* are small and elegant, clothed with fine down, and rather harder than the preceding. One species calls for a remark in passing. This is *C. apiarius*, also known as the Hive Beetle, half an inch long, with a blue head and reddish wing-cases crossed by three blue lines. Though sometimes resorting to the nests of wild bees, the beetles prefer to enter hives, where they deposit eggs; and the newly hatched larvæ bore into the comb, where they seize upon the bee grubs that are attainable. Luckily, however, it is not an abundant species. The larvæ are no doubt occasionally killed by the bees, though the shell of the beetles is elastic enough to throw off their stings. Last in this group come the retiring but busy beetles of the genus *Anobium*, to one or two species of which has been attached the ominous title of "death watches," from a ticking noise produced by them while carrying on their operations in wood. This peculiar sound some ears fail to catch, hence sceptics have denied that these beetles are vocal; but the fact is unquestionable, though the omen which superstition links to it is ridiculous. It is not the gnawing operations of the insect that cause the ticking noise—that this is a call from one to another is now generally believed; and to make it, the beetles strike with their heads against some hard substance. Larvæ, pupæ, and beetles may all be found together in decaying wood; and as some of the species like variety in diet there will now and then be discovered in our seed drawers specimens of these, which, if not duly routed out, may increase to become troublesome.

The next section of beetles, the Heteromera, "unequal-jointed"—that is, with five joints to the tarsi of the front legs and the middle pair, and four joints to those of the hind pair. Their antennæ are also "moniliform," resembling strung beads in miniature. In this section we do not discover a large number of native species, yet in it are some very observable species. It divides again into two groups, the species having a neck—*Trachelia*, and those having no neck, or the *Atrachelia*. The former

have not only the hind part of the head fully exposed to view, but also possess soft or flexible wing-cases, as in the familiar oil-beetle (*Meloe cicatricosus*), a slow-moving creature with a bulky abdomen, and of a steely blue tint, showing also a propensity to exude a fluid that is oily from the joints of the legs. This insect and others of the genus resort to flowers upon heaths or in hedge-rows; when they enter gardens, as they occasionally do, they are apt to excite apprehensions which are needless, for in feeding they do but little harm to either leaves or flowers. The larvæ are believed to live as parasites in the nests of wild bees—at least after a while, for the parent beetles deposit their eggs upon or near plants, up which the young larvæ climb when they have gained sufficient strength. With singular instinct they manage to cling to the bodies of the bees when they are visiting flowers, and are thus carried by them to their nests, where they eat the pollen or honey stored by the bees for their own progeny. It has not been ascertained whether the *Meloe* larvæ ever get into our hives.

Rhipiphorus paradoxus is the name given to a small beetle, long regarded as a *paradox*, because naturalists could not imagine why specimens occurred near wasps' nests. It has a black head with black wing-cases more or less tinged with yellow, and a black thorax which is humped. The male has a pair of beautifully feathered antennæ. Recent observations prove that the larvæ live amongst the cells where the wasps nurse their larvæ or



Fig. 102.—Male Glow-worm on the wing, females and larvæ seeking food.

grubs, upon which the beetle larvæ subsist, so that they assist in keeping down these troublesome visitants to our fruits. *Pyrochoa coccinea* is another beetle that is made conspicuous by its colouring—blackish in front, and a deep scarlet on the thorax and wing-cases, hence it has received the name of the "Cardinal." The perfect beetle is often seen amongst Ferns, while the larva has its abode in old Willows or Sallows. The Blistering Beetle (*Cantharis vesicatoria*) belongs to this division, a species rare in England, and though of use in medicine, is an injurious insect to gardens where it is plentiful.—J. R. S. C.

TOMATOES AT THE WEST LYNN VINEYARD.

WHEN passing through the houses of Mr. S. Castle the other day I was surprised to see the splendid crop of Tomatoes still hanging in various stages. Mr. S. Castle evidently understands the principles of Tomato culture; he informed me that from the same plants, which have been fruiting since the commencement of the season, he has cut upwards of a ton weight of ripe fruits.

The plants are trained up the back wall of a vinery, and also to wires fixed perpendicularly along the centre beds in this and other houses. They are planted in loam with an admixture of brick rubble, and have been watered occasionally with liquid manure. Mr. S. Castle, however, attributes his success to the naturally rich

soil employed, which he obtains from land adjoining the houses. He prefers the single-stem method of training, although several of the plants along the wall have been allowed to retain two, and in some cases three shoots. The plants with only one stem are from 10 to 12 feet in height, and bunches of fruit have been cut from them weighing from 2 to 4 lbs., and single fruits weighing more than a pound have been frequently cut. One house is filled with young plants about 3 feet high just commencing to bloom, and these are expected to maintain a supply until the main crop begins next season. The variety most grown is the Old Red; a house filled with Stamfordian proved a complete failure.

The majority of the Vines, which share the houses with the Tomatoes and show the same good management, were only planted in the spring of the present year, yet they have each carried one to two bunches of good size, and the wood is strong and perfectly ripened.

A house of Cucumbers attracts notice. The plants are now coming into bearing, and are remarkably healthy and strong. Judging from present appearances they will no doubt well repay for the skilled labour and excellent attention bestowed on them.

—VISITOR.

OXFORD BOTANIC GARDEN.—No. 4.

MANY other aquatic plants occupied the same tank as the Nymphaeas, some very rare in cultivation, or marked by special attractions either in their flowers, their structure, or their history. A description of all, or even a passing reference to them, would exceed the bounds of my notes, but a few of the most remarkable may be briefly alluded to. The charming *Eichornia azurea* was in first-rate condition, growing vigorously and flowering abundantly, and, like the aquatic plants generally, seemed thoroughly at home. It had increased very rapidly, and several botanic gardens where its culture had been unsuccessful obtained fresh supplies from Oxford. There also appears to be a probability of the plant becoming popular for ponds and tanks out of doors, as Mr. Robert Baxter informs me that in August last cuttings were placed in the pond there, and the plants thus obtained grew fast and flowered beautifully until November, attracting considerable attention from visitors.

Limncharis Humboldtii and *L. Plumieri*, the South American allies of our British "Flowering Rush," as the *Butomus umbellatus* is inaptly termed, were notable for their pale yellow flowers of brief duration but freely produced. They are both admirably adapted for cultivating with Nymphaeas or similar plants and are easily managed. The Water Caltrops (*Trapa natans*) was flourishing in one portion of the tank. This plant is invested with much interest, as is generally known; but, for the benefit of those unacquainted with its peculiarities, it may be stated that it is chiefly remarkable for its seed, which has a strange triangular form, suggestive of the instrument indicated in the popular name. The seeds also abound in starch, which has given rise to their use as food in some countries. For instance, they are stated to be so employed in Venice, where they are known as Jesuit's Nuts, and in other parts of Europe they are converted into flour. But as a food product the species *Trapa bispinosa* is even more remarkable, for we learn on good authority that the seeds form a large portion of the diet of several thousand persons in Kashmir during five months of the year. The ally of our native Pillwort, *Salvinia natans*, with its neat elliptical leaves closely studded with bristle-bearing warts on the upper surface, and arranged in a pinnate manner on the stem, is always attractive to the lover of vegetable curiosities. It was growing most vigorously, as well as its diminutive relative *Azolla pinnata*, and the still smaller *Riccia fluitans*, the latter of considerable interest to the microscopist. Those pretty Scrophulariaceae marsh plants *Herpestis Monnierii* and *H. reflexa*, with their pale blue flowers and thick leaves, were in good condition upon some soil at the edge of the tank; while among larger plants in pots were handsome specimens of *Thalia dealbata*, *Caladium distillatorium*, *C. esculentum*, *Cyperus pseudo-giganteus*, and *Papyrus antiquorum* that added considerably to the beauty of the house. I had nearly omitted to mention that the *Nelumbiums* were also very attractive, both *N. speciosum* and *N. luteum* being in fine condition and flowering well.

A brief notice of one other plant and I will conclude my remarks upon this house, which have already proved somewhat lengthy. It is the rarely seen *Houttuynia cordata* I wish to draw attention to, for when well grown and in flower it is elegant and striking. It is a marsh plant from Tropical Asia and Japan, and is one of the few representatives of the small natural order Saururaceae, which is allied to the Piper family. The flowers are individually of little beauty, but they are borne in a close compact spike several inches long, at the base of which is a ring of large

white bracts, constituting the chief floral beauty of the species. The leaves are, as the specific name implies, cordate in form, and their rich green colour renders the plant at all times worth growing where sufficient heat and moisture can be provided.

Of the occupants of the several other houses much could be written without exhausting the subject, but I must confine myself to a very cursory description of the most noteworthy. In a stove near the aquatic house were an extremely large specimen of the brilliant *Euphorbia splendens*, and one of the oldest plants of *Chamaerops humilis* in this country. It is said to have been in the Oxford garden for over one hundred years, and appears likely to last for a long time yet. *Xylophylla latifolia* was represented by a large plant bearing the flowers in the peculiar manner which characterises the genus—namely, on the margins of the leaves, or, more strictly, phyllodes. The house devoted to Ferns contained a good collection, including several rare species, and generally healthy. A cooler structure was occupied by Cape Pelargoniums, bulbs, and Haworthias. Of the last-named genus a number of species and varieties are grown, some being far more attractive than the majority of succulent plants, though they are comparatively little known except in a few large collections. The house specially reserved for such plants contained many specimens of great age; the two most notable being *Cereus heptagona*, one of the oldest inhabitants of the gardens, and *Cereus senilis*, 14 feet in height and about 8 inches in diameter. *Aloe socotrana* was also very fine, and several others were similarly remarkable. There remains one plant to notice that I have never seen in cultivation before, and perhaps there are few other botanic gardens where it could be seen—namely, *Conferva ægagropila*, the Vegetable Ball or Cow's Cud, a most peculiar species of a singular genus. It consists of dull green slender filaments, which grow in lakes and similar situations, but at Oxford is grown in a vessel of water placed in one of the houses. These filaments are at first loose, but gradually become aggregated, and finally form a firm spherical ball usually $2\frac{1}{2}$ to 3 inches in diameter, but it sometimes attains a greater size, as I have seen dried specimens fully 6 inches in diameter, but these also included several other substances. As a curiosity perhaps the plant is not rivalled in the whole collection.

The hardy plants, like those in the other departments, are well attended and numerous, but unfortunately at the time of my visit the weather was so wet that it precluded any satisfactory examination of the grounds. Therefore to another visit, which may possibly be made under more favourable circumstances, I must defer any notes upon that portion of the garden. I cannot, however, conclude these brief and incomplete jottings without expressing my thanks both to Mr. W. H. Baxter and his son for their courtesy during my short stay at Oxford.—L. C.

THE METEOROLOGICAL SOCIETY.

PHENOLOGICAL OBSERVATIONS FOR THE YEAR 1880.

THE usual monthly meeting of this Society was held on Wednesday the 15th inst. at the Institution of Civil Engineers, Mr. G. J. Symons, F.R.S., President, in the chair. After the election of new Fellows a paper on the above subject was read by the Rev. T. A. Preston, M.A., F.M.S., who stated—Agriculturally speaking the year may be considered as disappointing. Till June the weather was such as has rarely been experienced for farm operations. The severe cold of the winter broke up and mellowed the soil, and the dry open weather enabled farmers to clean their land from the excessive growth of weeds caused by the damp of the year before. The dry May was not favourable for the hay, which suffered severely in some places; but still a crop with far more real nourishment in it than would be obtained from a rank growth would have been secured had it not been for the terrible floods of July in the midland counties, which not only seriously injured the crop, so that it was frequently not worth the trouble of removing off the land, but also carried it entirely away in low-lying districts. The corn, again, which was looking most promising till July, suffered much during that damp period, and had it not been for the subsequent fine weather would have been ruined. But the unfavourable season of 1879 produced very serious effects on vegetation, especially on trees and shrubs, and their produce. The young wood of the trees was not ripened, and as a natural consequence the severe winter killed an enormous quantity of some kinds, and greatly injured others. *Laurustinus* was generally killed to the ground, and in some districts the destruction of other shrubs was severely felt. The evergreens in many cases lost large quantities of their leaves. Hollies especially are mentioned by several observers, and Privet hedges were sometimes quite leafless. With respect to fruit trees, Apples and Pears in some localities, but not all, were hardly able to put forth any bloom, and the crops were consequently extremely poor. Wall fruit was also a general failure, but this was partially owing to severe weather when the trees were in bloom, for in some instances the show of bloom was splendid. Gooseberries and Currants produced enormous crops, and Strawberries were very fine, but they lasted an unusually short time. Seeds generally ripened with difficulty; much

of the corn could not be ground, and a great deal was mixed up with roughly ground Indian corn, and flavoured to induce the cattle to eat it. The crop of ordinary garden seeds was also far below its usual quality, and some of the favourite garden flowers were consequently very poor. Among the special features of the year may be mentioned the great quantity of certain insects. Aphides were in astonishing numbers in the early part of the year. The Apple shoots before the leaves expanded were in almost every case covered with this green fly, and among wild plants the Guelder Rose was especially attacked by them. Wasps, again, have been in extraordinary numbers, and dreadful accounts of them have been sent to the various entomological periodicals; their numbers appear to have exceeded all previous experience. The larvæ of the Gooseberry moth and of the Gooseberry sawfly have also been extremely destructive; and finally, as an undoubted

result of the wet season of 1879, the larvæ of the crane fly have been a perfect plague in some localities, and sheep ticks in others. The scarcity of small birds has been generally noticed; some, no doubt, perished from the cold, but vast numbers had migrated. The enormous numbers of larks which hastened to the eastern counties on the outbreak of cold weather was astonishing.

PEAR VAN MONS LÉON LECLERC.

IN any reference to Pears that usually ripen in November, numerous and good as they are, this imposing variety must not be omitted. It is not only one of the most handsome of Pears, but is of excellent quality, and the tree is a good grower and bearer. It



Fig. 103.—PEAR VAN MONS LÉON LECLERC.

makes one of the finest of wall trees, and is worthy of a good position; it is also well suited for growing as an espalier, while it makes a good pyramid on the Pear stock. In sheltered places it succeeds as a standard, but to have fruit of the largest size the tree should be trained to a wall. The specimen figured was gathered from a diagonal cordon. The following is the description of the variety:—

Fruit large, sometimes very large, 4 or 5 inches long, and $2\frac{3}{4}$ to 3 inches wide; oblong-pyramidal, undulating and uneven in its outline. Skin green at first, but changing to dull yellow, covered with dots and tracings of russet. Eye open, with spreading segments, set in a shallow basin. Stalk 1 to $1\frac{1}{2}$ inch long, curved, and inserted in a shallow cavity. Flesh yellowish white, buttery, and melting, very juicy, rich, and with a delicious sprightly vinous flavour.

This Pear was raised by M. Léon Leclerc of Laval, formerly Deputy for the department of Maine, and named in honour of Dr. Van Mons. The tree first fruited in 1828.

TYDÆAS.

THESE plants are amongst the most beautiful that can adorn the stove, no matter at what season of the year they are produced. Even in summer they are delightful, and quite distinct from Achimenes. During autumn and winter they are invaluable, and will flower profusely throughout the dreariest and darkest months of the year. It is surprising that Tydæas are not grown more largely in the majority of gardens, when the easiness with which they are cultivated is taken into consideration compared with that of many plants not nearly so beautiful. They continue

much longer in bloom than many flowering plants, and when well grown produce their beautifully spotted flowers in succession over a great space of time.

In commencing the cultivation of these plants it is wise to obtain them while in a resting state, and by judicious care in starting some at intervals of a month a supply can be obtained through the whole year. It is difficult when first obtaining the small tubers to adapt them to winter growth. This difficulty can soon be overcome by keeping those required for late flowering at rest as long as possible, and in a season or two the whole stock can be started at any time. It is wise to keep the different batches separate, either by labelling or otherwise, or some of those required first may be left, while those for late work may by mistake be potted earlier than intended. In starting them into growth the small tubers can be placed either in the pots the plants are intended to bloom in, or they may be placed in small pots, afterwards transferring them into others 5 or 6 inches in diameter, which are large enough for single plants. The plants do well on either system, but the latter is preferable, as the soil is not so liable to become sour before the pots are filled with roots. If the pots can be plunged in bottom heat so much the better, and the quicker will the tubers commence growth, although bottom heat can easily be dispensed with, and when growth is a little advanced they do as well without it. A temperature of 60° to 65°, regulated according to the outside temperature, is ample if increased as the season advances. During summer slight shade is beneficial on hot bright days, but excessive shading will cause them to draw up weakly and flower unsatisfactorily. As before stated, a few started every month will maintain an unbroken supply. Tubers potted at the commencement of the new year will produce flowering plants by the end of May and through June, and plants started at the beginning of May will bloom by the end of September and through the following month. In autumn and winter they are most useful, and to have a good supply batches should be potted from May until August; and as the growth is not so rapid during the declining days of the year, those started in August will maintain a supply until late in the spring. When plants have to grow through the winter it is necessary they have a light position close to the glass, and care must be taken not to cause a check to their growth.

The pots when used should be clean and well drained, a layer of moss being placed over the drainage, then nearly filled with the compost, placing a little sand in the centre, in which to embed the tubers, care being taken to have their growing ends near the centre, and covered with the compost. This should consist of good fibry loam, a liberal admixture of leaf soil, a seventh of manure, and sufficient coarse sand to keep the whole porous. Peat may be used as a substitute for the leaf soil if more convenient, but the soil must be light and rich. A number can be placed together in the same pot if large specimens are required, but for all ordinary decorative purposes 6-inch pots are large enough. Tydæas, if properly attended to when resting, make strong growth from very small tubers. When placed in the small pots and the roots reach the sides they should be transferred into the larger size, only removing the drainage, and injuring the roots as little as possible in carrying out the operation. While in active growth the plants require liberal applications of water at the roots, except immediately after they are repotted, when water should be applied with care and judgment until the roots have permeated the new soil. When the pots are full of roots liquid manure may be supplied with advantage. Syringing the foliage is not needed, and indeed the leaves when wet are often injured by exposure to the sun.

The resting period is by no means the least important, and success to a large extent depends upon the treatment then followed. Tuberous-rooted plants of this nature are often neglected by allowing them to remain in cold potting sheds, or by storing them away under the stages. Neglect in this respect brings Tydæas into an unsatisfactory state, and instead of increasing in numbers and gaining strength year by year they become weaker, and in a few seasons are almost useless. If, however, after flowering they are liberally supplied with liquid manure, it will assist considerably in increasing the size of the tubers, which must be plump and matured before resting. The plants must have attention until the foliage commences dying, when they can be kept somewhat drier and allowed a similar temperature to that in which they were growing. When finally at rest they can be stored away in any cool place where a temperature ranging between 35° and 40° can be maintained. Tydæas will not endure being kept quite so dry while resting as Achimenes. It must be borne in mind their tubers differ considerably from those of Achimenes, Tydæas being more like underground stems.

The following are twenty excellent varieties well worthy of

cultivation:—*T. alba nigra*, *Alexandre*, *Amarante et cannelle*, *Corneville*, *Etna*, *gigantea*, *Hereule*, *Itaculum*, *Junon*, *Leandre*, *Madame Heine*, *Minerve*, *Robert le Diable*, *Pluton*, *Batafago*, *Sapé*, *Themistocle*, *Tricolore*, *Wonder*, *Xenophon*.—WM. BARDNEY.



RARELY can a horticulturist visit our great metropolitan emporium of fruit, vegetables, flowers, and plants—COVENT GARDEN MARKET, without seeing much to interest him, but one of the most stirring times is the present. The preparations for the Christmas demands is shown on all sides. Such largely consumed commodities as Oranges, Nuts of many kinds, the indispensable Mistletoe, and the seasonable Holly form the chief features in the display, but unfortunately the last-named is sadly deficient in the number of its berries. Of cut flowers there is abundance, including such generally appreciated kinds as Roses, Violets, Lilies of the Valley, Camellias, Eucharises, Hellebores, Bouvardias, Primulas, Hyacinths, Chrysanthemums, Zonal Pelargoniums, Euphorbia *jaquinæflora*, and a few Orchids, principally *Calanthes* and *Odontoglossums*—a goodly list. The seed vessels of *Iris foetidissima* with their brilliant scarlet seeds are strongly represented, and the "Everlasting Flowers" of varied colours also add to the attractions. Plants, fruit, and vegetables are all displayed in similar profusion and excellence.

— AMONG the "Everlasting Flowers" noted above, the flower heads of *ASTELMA EXIMIUM*, THE STRAWBERRY EVERLASTING, are particularly attractive. The bracts are of a rich rosy tint, and incurved so as to form close heads, bearing some resemblance to Strawberries. The plant is a native of the Cape, and has long been known in this country, but is comparatively rarely seen. Messrs. Smith & Larke of Kensington exhibited specimens of the flower-heads at the Royal Horticultural Society's Meeting on the 14th inst.

— "A VISITOR" sends us the following note on *BEGONIA SEMPERFLORENS GRANDIFLORA*:—"On the two occasions that Mr. W. Iggulden, Orsett Hall Gardens, Romford, has exhibited his variety of the well-known *Begonia semperflorens* I have been attracted by its floriferousness, the large size of the blooms, and the good habit of the plant. At the last meeting of the Royal Horticultural Society these characters were particularly notable, and I have seen plants honoured with certificates that were in my opinion less distinct and useful for decorative purposes. It unquestionably appears to well merit the name *grandiflora*."

— FROM a recent communication we learn that THE WINTER GARDEN IN THE PARK AT SUNDERLAND—which, by the way, is the only structure of its kind in the north of England—has been unusually gay this autumn with Chrysanthemums, including fine specimens of *Mulberry*, *Calliope*, *Model of Perfection*, *Novelty*, *Ariadne*, *Queen of England*, *Empress of India*, &c., besides a number of excellent plants of zonal Pelargoniums all in full bloom, and dispersed amongst the foliage plants. Palms planted out have a most pleasing effect, the ground being carpeted with *Selaginella*; but the chief feature in the winter garden at present is, amongst the many fine climbers that adorn the walls and pillars, *Eupatorium odoratum*, associated with *Tropæolum Lobbianum*; the effect of the scarlet *Tropæolum* and the cream-coloured *Eupatorium* in combination is very beautiful. All who wish to have the flowers of this *Eupatorium* in the autumn in quantities should plant it out in an intermediate house.

— A CORRESPONDENT writing upon the WEATHER IN THE NORTH OF ENGLAND observes—"It is not often in the north that such fine weather has been experienced as we have had this autumn. Outside operations of all kinds have progressed most favourably. With one slight fall of snow in November, and another on December the 16th, which scarcely lasted twenty-four hours, the weather had been most favourable. Since then there have been severe frosts, and temperatures of 7°, 8°, and 10° below zero having been registered, accompanied by dry cutting north-east winds."

— ONE of the pretty winter-flowering Orchids exhibited by Messrs. J. Veitch & Sons at the last meeting of the Royal Horticultural Society was *DENDROBIUM ENDOCHARIS*, a hybrid obtained by Mr. Seden a few years since from crossing *D. japonicum* with *D. heterocarpum*. It partakes of the characters of both parents, but possesses several clearly defined and distinctive marks. The flowers are produced in pairs from the nodes of the growths, and are white with a purplish blotch in the labellum, the delicious fragrance exhaled being suggestive of Violets. As the nodes on the numerous stems are closely placed, a specimen of moderate size has a pleasing effect when in flower.

— AT J. Brand, Esq.'s residence, Bedford Hill House, Balham, the old *CAMELLIAS* PLANTED OUT in a cool house, and trained to the back wall, are this season in remarkably healthy condition; the foliage a most intense glossy green; the flower buds of great size, and so abundant as to give promise of a beautiful display a week or two hence. The *Calceolarias*, which annually form such attractive groups at some of the summer exhibitions, are a sufficient proof of Mr. Rapley's skill as a plant-grower, but with *Camellias* and *Eucharises* he seems to be equally successful. The enormous specimens of the latter plants, about a yard in diameter and growing in tubs, have been magnificent, the five largest having borne about 150 scapes of handsome flowers. The most noteworthy plant in the stove at the present time is the useful and brilliant *Euphorbia jacquiniæflora*, which is represented by numerous small specimens.

— "A GARDENER" writes:—"There is now a grand display of *POINSETTIAS* AND *CALANTHES* AT HAWKSTONE, the seat of Lord Hill. They are arranged alternately, and the effect is magnificent. The *Poinsettias* vary in height from 12 to 16 inches, having very large bracts of the brightest scarlet. The *Calanthes* are principally forms of *C. Veitchii*. One or two pseudo-bulbs are grown in each pot, are strong, and the spikes of flowers very beautiful. Mr. Pratt is very successful in the cultivation of these plants."

— ON Saturday evening the 18th inst. Mr. Glover, Lee Hall, read before the members of the LIVERPOOL HORTICULTURAL ASSOCIATION an excellent paper on the cultivation of the *Odontoglossum*, followed by a very interesting and highly instructive paper from W. B. Halhead, Esq., the Honorary Treasurer of the Association, "On the Germination of Seeds." Mr. Halhead takes great interest in this portion of the Association's work, and has induced several gentlemen to promise to read papers at future meetings. The meeting terminated with the usual vote of thanks to Mr. Richardson, the Chairman.

— THE dinner given to their *employés* by MESSRS. WAITE NASH, HUGGINS & Co. to celebrate the amalgamation of the two houses, was held on Saturday evening last at the Imperial Hotel, Southwark Street, Mr. J. C. Chapman presiding, with Mr. R. W. Jack as Vice-Chairman. The evening was passed very pleasantly.

— MR. ALEX. CHRISTIE, Warnford Park, Bishops Waltham, succeeds Mr. D. Judd as gardener to the Earl of Warwick, The Castle, Warwick; and Mr. FREDERICK THOMSON, Woodville, Reddish, near Stockport, succeeds Mr. Simpson as gardener to W. Baring, Esq., Norman Court, Dean, Salisbury.

— LAST week the Baroness Burdett-Coutts opened a public Exhibition of natural and artificial flowers and plants, in aid of the LONDON FLOWER GIRLS' BRIGADE. The object is to elevate young girls who vend flowers in the streets. The girls, about fifty or sixty in number, are clothed in a neat dress, not strictly a uniform, but of similar materials and makes, and they wear an ivory badge on a blue ribbon. They are supplied with flowers, which are bought in Covent Garden Market, and are never allowed to be under any but the Brigade room roof, and on the sale of these flowers they receive a small commission, besides regular weekly wages. They are stationed in places where they can sell their flowers, either bouquets or for the button-hole, secure from insult or molestation; and they are sent with supplies to regular customers in various parts of London. In the winter they are trained to manufacture artificial flowers, a work for which they show great aptitude, by reason of their early familiarity with natural flowers, and their unconscious observation of their growth and peculiarities of foliage and bloom. Bouquets, also artificial, under glass shades, were in abundance on the stalls. Nosegays and flowers for the buttonhole presented an attractive spectacle. Some twenty or thirty of the "Brigade" girls were at work, in the manufacture of these artificial flowers, at a table in the centre of the hall. The principle of division of labour obtained among them. Each made a certain portion of a flower, and others put together the component parts.

MELON CULTURE.

NOTWITHSTANDING "A KITCHEN GARDENER'S" criticisms (page 556) upon my few remarks (page 509) I am still sceptical, and in fact believe artificial assistance to Melons, either by fermenting materials or hot water, at some stages of their growth to be absolutely necessary, and I very much question the soundness of his advice to amateurs in representing artificial heat as unnecessary, unless raising and growing the plants strongly is not part of their culture. Melon-growing is certainly more expeditious with fermenting materials than without, although failures occasionally occur by an excess of heat and the very simple details of preparation of the materials being carelessly and slovenly managed. On the other hand, as good fruit may be and are grown in a two-light box as in the most elaborate Melon house. What say our large growers? If "A KITCHEN GARDENER'S" criticisms be rightly understood very many gardeners go to very much unnecessary trouble and expense, as the only thing to do is to sow a few seeds in the garden and bring a two or three-light frame and place over them, Nature doing the rest. If agreeable to "A KITCHEN GARDENER," and he will advise me to this effect, I will endeavour to make a pilgrimage to see so great a novelty whenever ready, as I am not too old yet nor too conceited to learn how to grow Melons without artificial heat.—W. CRUMP, *Blenheim*.

GLEICHENIA DICARPA VAR. LONGIPINNATA.

GLEICHENIAS now hold a foremost place both in ferneries and at horticultural exhibitions, and very deservedly, for when well grown they are extremely graceful owing to the distinct habit, the fine divisions of the fronds, and their drooping tendency. The species *G. rupestris*, *G. Mendellii*, *G. circinata*, *G. flabellata*, *G. dichotoma*, *G. speluncae*, and *G. dicarpa* are all well known and appreciated, together with several varieties. One of the latest introductions and one of the most handsome is the form of the last-named species, appropriately termed *longipinnata*, which Mr. B. S. Williams of Upper Holloway obtained from Australia a year or two since. It has already attracted much attention from Fern-growers and exhibitors, and the latter are likely to find it a great acquisition, as a large specimen would be most imposing in a collection. I have not seen one of extraordinary size at present, but several excellent "half specimens" have recently come under my notice. The best of these I observed in the collection of an experienced grower and exhibitor, who speaks highly of the variety, which he thinks will soon be considered as one of the most effective for the purpose named. Small plants are, however, admirable for warm greenhouse decoration, and are scarcely excelled in the genus.

G. dicarpa longipinnata resembles the species of which it is considered a variety, but is distinguished chiefly by the greater

length of the pinnæ, as the name implies. Each of these are about 5 or 6 inches long, thus giving a breadth of 10 or 12 inches to the two or four divisions of the frond, which is also longer than in the type. In colour the young fronds are particularly attractive, for the rich deep green is tinted with a metallic blue that is very striking, and the lower surface has a fine glaucous hue. Other valuable characters are freedom and quickness of growth, in which respects it surpasses most of the species in general cultivation—amply sufficient to recommend it.—R.

REVIEW.

The Herefordshire Pomona. Edited for the Woolhope Club by ROBERT HOGG, LL.D., F.L.S., &c. Part III.

THIS magnificent work goes on as it began; it has not belied its first promise, but if anything Part III. is beyond its predecessors. It follows the same lines. Just as in Part I. we had Dr. Bull's paper on the "Early History of the Apple and Pear," and in Part II. the same writer's article on "Modern Apple Lore," so here in Part III. we have as introductory papers "The Crab, its Characteristics and Associations," by Mr. Edwin Lees, and Mr. Bulmer's treatise on "The Orchard and its Products," the latter an exceedingly practical paper, treating of the orchard, soil, surface, drainage, aspect, climate, and site, manuring and planting; then orchard trees; seedlings, budding and grafting; varieties, old and new; pruning, and those enemies of the orchard tree Mistletoe, blight, and red spider. Forty coloured figures of Apples and Pears follow, with sections of the same and descriptions. So much in regard to a general view of Part III. recently issued from the press.

Mr. Lees, in his history of the Crab and its associations, carries us in thought away from winter and its dreariness to May and its blossoms, when

"The jay's red breast
Peeps over her nest
In the midst of the Crab blossoms blushing,"

and makes one see the Crab's delicately blended pink-and-white blooms, prettier far than the Apple. He tells us that the Crab existed in Europe and Asia *ab origine*, that it is mentioned in the Scriptures, that in the earliest days of England the roasted Crabs hissed in the bowl; still, the Crab of itself is a poor fruit, only eaten with relish by each generation of rustic schoolboys, who will eat anything that looks like fruit. Harsh is the taste of the Crab, rugged its growth, and "crabbed" is a word taken from it and used to denote a very unpleasant type of man, for who of us wishes to have as a companion "a crabbed fellow?" A Crab stick, too, was a peculiarly harsh and unpleasant weapon used only by these crabbed fellows. This Crabstick discipline no doubt originated in savage times, and was perpetuated by only savage natures. Of such was the man in Southey's ballad, where we learn that

"Richard Penlake a scolding would take
Till Patience availed no longer;
Then Richard Penlake his Crabstick would take,
And show that he was the stronger."

Mr. Lees quotes, of course, from Shakspeare (we can quote Shakspeare on any subject!), from Milton, Cowley, Pope, and others to illustrate his subject. He tells us that even now (and we are surprised at it) Crab vinegar is still made in some secluded rural districts, and gives us an anecdote to prove its truth—that a farmer left behind him at his death a hogshead of this very sour vinegar—that his executor had it put in a barn, imagining that no such sour liquid would be furtively tapped. He was, however, mistaken, for the labourers drank it, and so at the sale the cask was there but no liquid. Verily Worcestershire labourers would drink anything. Even our Wiltshire chawbacons object to sour beer, calling it "rot-gut," but Worcestershire internals must be proof against all injury, and Worcestershire throats greedy in the very extreme.

Mr. Lees carries us on merrily as to the uses of the Crab—how when roasted they were thrown hissing hot into the spiced ale; how that west country damsels (Somerset girls, we suppose) gather Crabs, and putting them into a loft form them into the initials of their supposed suitors' names, and those remaining most perfect on Old Michaelmas day were those of their truest lover. Nor is Shakspeare's Crab tree near Bidford forgotten, though, like the deer-stealing tale, we do not believe a word of it.

Crabbing the Parson must have been unpleasant work, at least for the poor parson, who on Dec. 13th, the feast of St. Kenelm, had to run to church amid a shower of Crabs thrown by village boys. But the days of Crab eating, and Crab use, and Crab

merriment are over. Yet as the remote ancestor of all the excellent cultivated varieties of the Apple, the Crab deserves to be remembered. May we enjoy its blossom and have that only in our thoughts, not crabbed relations or crabbed acquaintances; friends of crabbed people we should certainly not make.

Next follows "The Orchard and its Products"—cider and perry. This useful paper is to be continued in the next part of the *Pomona*. One of the mottoes or quotations at head of the chapter is this suitable one from Lord Bacon, "We had also a drink, wholesome as good wine of the Grape, a kind of cider made of the fruit of that country." It always is a surprise that with cider so easy of production that light claret, so utterly inferior as a drink, should be increasingly consumed, and I fear cider to the bulk of the population of this country is almost unknown. We cannot grow the Grape profitably, but we can grow the Apple. Somersetshire labourers work ably and gladly on cider; I doubt whether in this climate they could on that dark-coloured vinegar known as Gladstone claret. We need not import Apples from America if we were only energetic, and we equally need not so largely import light claret from France, a drink that, save on a hot summer day, is unsuited to us; and then on a hot summer day what so delicious as cider?

Mr. Bulmer in this chapter traces back the cider orchards in Normandy to the eleventh century, then their increase in the thirteenth and sixteenth centuries; but that it was not till the seventeenth century had been well advanced that cider orchards were much planted here in England. Continental wars caused wine to cease to be imported, and we depended upon our home-made drinks. Poets and writers praised cider and perry. Squires and growers vied in its production, and success of course was the result. The labourers had a harmless and wholesome drink, so unlike the muddy muddling poisoned beer now obtained at the low public house. The prosperity of orchards was, however, not for long. Land was wanted for corn-growing and cattle-feeding, and orchards were neglected—just, in fact, an opposite state of things to that in this day; so cider and perry went down and bad ports and sherries came up. On the continent it was the same—the same, too, half a century since in America, but is not so there now; for American farmers are beginning to recognise the fact that no farm is complete without a well-selected and well-cultivated orchard. It should be so in England, for wisely says Mr. Bulmer, "If free trade in corn and the introduction of live and dead meat restrict the profits of the farmers, happy are they who, as in the fruit districts of England, have their orchards to help them." Mr. Bulmer further states that "the present condition of the English orchards is far from satisfactory, and they show sadly the result of long-continued neglect."

After this essay, practical remarks upon the soil suited for an orchard follow, headed by this general observation—"The Apple tree certainly prefers a sandstone wherever it is found, as the Pear rejoices in calcareous soil." Still Apples and Pears often do well on neither soil. Magnificent Apples grow on the gravelly islands which lie among the Fens, and Pears do the same, though, no doubt, as old T. Andrew Knight observes, "Every variety of Apple is more or less affected by the nature of the soil on which it grows." In regard to cider fruit the soil is more important. The whole of Mr. Bulmer's paper is well worth reading by all intending to plant an orchard, with a view particularly to the production of cider and perry. It is an able paper, interestingly, and therefore well written, for whatever is dull in style is a trouble to read and hard to remember.

Next follow what all eyes appreciate—viz., the pictures. These are quite equal to those in the former parts. Plate 15, three baking Pears—Catillac, Uvedale's St. Germain, and Bellissime d'Hiver, all admirably done, the last being perhaps the best. Following every plate are sections and descriptions of the varieties pictured, all extremely valuable. Plate 16, Golden Harvey and Cox's Orange Pippin, two of each kind at different stages of ripeness, with a pair of blossom of each. Plate 17 contains portraits of five excellent cooking Apples, all large and fit for exhibition—Waltham Abbey Seedling, Bedfordshire Foundling, Eeklinville Seedling, Hanwell Souring, and White Spanish Reinette. Plate 18, groups of perry-producing Pears, small and brown, with a glowing cheek for the most part. Plate 19, brightly coloured summer-eating Apples—the excellent Margaret, the pretty Summer Strawberry, and the matchless Irish Peach. In plate 20 are two thorough exhibition Apples—Yorkshire Beauty and Lodington or Stone's Apple. No Americans are beyond these in appearance. The latter, though bearing the name of a Kentish village, was originally from a nursery near Bath. Plate 21, two striking groups of Apples; first Russets, with the apt quotation under, "There's a dish of Leathercoats for you," the words bringing to one's mind Justice Shallow's seat in Gloucestershire,

that not by any means clever master, and his equally foolish men. I think the dish of Leathercoats might have been appropriately represented on a dish of the period. The lower picture "Nonpareils, an it please you." These are among the very best illustrations in this part, for they seem as if they would roll off the paper into your lap. Plate 22, three Pears—Beurré Superfin, Triomphe de Jodoigne, and Beurré Duhaume. In Plate 23 we return to cooking Apples—Golden Noble, Dr. Harvey, and that best of sorts for an espalier particularly, Warner's King. The 24th and last plate gives us three capital Pears—General Todtleben, Soldat Laboureur, which by the way is one of the few late Pears which always does well as a pyramid; and lastly Beurré Bachelier.

One lingers over this work from its truthfulness and beauty. One writer says of "portrait painting" "that it should be truth lovingly told;" so of the fruits here pictured. They are not gaudy fancies, and not bare reproductions; but they are Pears and Apples pictured truly yet favourably—just what they should be. Dr. Hogg's descriptions are, as always, very accurate, and the number of synonyms a great help to the learner.—WILTSHIRE RECTOR.

JASMINUM GRACILLIMUM.

At the last meeting of the Royal Horticultural Society the plant that attracted the most general attention was the distinct, fragrant, and floriferous



Fig. 104.—JASMINUM GRACILLIMUM.

can only be displaced by shaking them with considerable force. It is a graceful and attractive plant, and will in due time find its way into all gardens where choice stove plants are grown, and pure, chaste, and highly perfumed flowers are cherished. As was remarked on page 554, the honour of having introduced this acquisition to our plant stoves is due to Mr. F. W. Burbidge, who found it during his travels in Borneo.

GARDEN REFUSE AND ITS USES.

YOUR correspondent Mr. Iggulden, at page 503, has commented upon a most important subject, and yet one in many establishments greatly neglected, and it is much to be hoped his able

Jasmine, a spray of which is represented on fig. 104. As a stove plant this will prove an introduction of sterling worth. It is not necessary to train the growths to a trellis, but by judiciously stopping them during growth, and a little tying, free bushy specimens may be obtained, or stands with semi-loose informal heads covered with flowers. Some of the large terminal clusters have comprised as many as fifty flowers and buds with axillary flowering growths of considerable size. The flowers are pure white, of the form represented, and the largest are $1\frac{1}{2}$ inch in diameter. For affording choice cut flowers this Jasmine will be of great value, as, unlike most others of the genus, they do not so soon fall when severed from the plant, but, on the contrary, they

remarks may remedy the evil in places where little excuse can be made. His arrangements for disposing of the refuse of the pleasure grounds are admirable and much to be recommended where practicable, but I have found much inconvenience and annoyance from the kitchen garden rubbish being employed, as it is with considerable difficulty that the vitality of the seeds are destroyed. I have very fresh recollection when living in the west of having used some garden refuse that had been heaped and thoroughly decomposed upon beds in the flower garden, in which a somewhat intricate geometrical plan was afterwards carried out. The result was that we were constantly employed in keeping down weeds which came up in dense numbers.

Another instance occurred this season when taking the gardens

now under my charge. The accumulation of some years had formed a large heap, which was ultimately thrown up into two large heaps, intended for grass land. The lower portion was so much decayed that I thought no seeds could possibly trouble us, and it was accordingly used in some beds in an old-fashioned flower garden. The weeds came up worse than before and caused us much trouble, so the remainder will be taken to the farm. The refuse of this season, in the form of burnt ashes, is now in a dry corner in the shed. In spite of the wet summer everything, except present prunings, have been burnt, and the ashes carefully sifted and stored. We manage by judiciously banking up the fire and attending regularly to keep it in many days together; the result being a heap of ashes, the value of which is only known by those who carefully store it one season and liberally use it the next.—J. W. SILVER.



HARDY FRUIT GARDEN.

In open weather planting fruit trees may be proceeded with, and as soon as they are planted the ground should be well mulched with littery manure to resist frost and keep the soil in a moist equable condition, which is of great importance to the success of newly transplanted trees. Where the condition of fruit trees on walls or in the open is unsatisfactory the roots must be carefully examined when it will frequently be found that remedial measures may be employed with good results. Over-luxuriant fruit trees, whether trained to walls, or as espaliers, pyramids or standards, can generally be rendered fruitful by judicious root-pruning. This should, however, be carefully performed, cutting back the strong bare roots, and preserving as many of the small roots and fibres as possible, laying them in fresh soil near the surface. It is impossible to give particular rules for root-pruning, as that will need to be varied according to the vigour of the trees and the condition of the roots.

Trees of moderate age that are very vigorous and have not previously been root-pruned, will probably have the roots considerably elongated, thick, and with few ramifications near the stem. To cut those all away at once at a distance of 3 to 6 feet from the base of the tree would give a check that the tree may not recover from at all, or take a considerable time to do so satisfactorily. In cases of this kind only a portion of the strongest roots should be cut in a season, say the thickest of the roots at a distance of from 3 to 6 feet from the stem, according to the size of the tree; cutting them off clean and transversely, and removing from the soil as far as possible the portions severed. The cut-back roots will in two seasons have formed roots freely near the stem, when those not subjected to the process in the first instance may undergo similar treatment. In root-pruning generally, the roots should be laid bare to a distance of 6 feet from the stem, cutting back any that are thick and fibreless, and as far as possible to an angle, as in the case of removing superfluous branches from the head. If they are deep they should be raised and laid out carefully near the surface. In cases of weakness in the trees let the surface of the soil be carefully removed so as to expose a considerable portion of the roots, and after cutting out any decayed parts and taking out the old soil, work some good turfy loam among them, and cover them about 3 or 4 inches deep; render the soil moderately firm. Operations of this kind should be done in dry weather, mulching at once with littery manure.

In the renovation of fruit trees, where the soil is light and shallow an addition of fresh turfy loam with clay or marl will be favourable, and should be supplemented by liberal surface dressings of cool manure. Where the soil is rich restriction of the roots by biennially cutting them at about 4 to 6 feet distance from the stem all around will check the tendency to undue vigour, and maintain the trees in a fruitful condition. Where trees make sappy and late growths, the soil, in addition to being rich, is probably wet, which can only be rectified by a thorough system of drainage. In cases

where trees of considerable age have become unproductive, the variety of inferior quality, or unsuitable to the situation, they may now be headed down, particularly standard trees, and grafted in spring with more suitable varieties. Locality and soil have much to do with the bearing and quality of Apples and Pears; hence in improving old trees or in forming plantations of fruit trees it is always advisable to employ largely the varieties that have been proved to succeed, not, however, to the exclusion of new varieties. Bullfinches are already becoming too attentive to the Gooseberry quarter. Sprinkling the bushes whilst wet with quicklime and soot will render the buds distasteful to the birds, and a solution of fir tree oil insecticide or nicotine soap syringed over the bushes or applied through a rose watering pot will protect them for a long time. The gun, however, is the only certain remedy except trapping.

PLANT HOUSES.

Conservatory.—Chrysanthemums will soon be over and their place taken by Camellias, which with other plants from the temperate house, in addition to those brought forward in heat, will make an effective display. To secure the free expansion of Camellia flowers a temperature of 45° to 50° is necessary in the day with a fall of about 5° at night, which is equally suitable for plants generally in flower in the conservatory at this time of year. In severe weather, necessitating abundant fire heat, care must be taken that the atmosphere is not allowed to become too dry, or the buds of Camellias will be likely to fall, especially of late varieties. The supply of water to the roots must be liberal. Fragrant flowers are never more appreciated than at Christmas, and especially is it necessary to provide a succession of such plants where the conservatory is attached to the mansion. Heliotropes that have been prepared for winter flowering should have a light position or their flowers will not open freely, and if in small pots liquid manure will be beneficial. Richardias may be introduced as their spathes open. A sufficient supply of these plants should be at command to keep up a succession until spring, their distinct foliage and stately spathes contrasting well with others. A few well-grown plants of Violets placed about the house will afford an agreeable and acceptable odour.

Pelargoniums.—Show, Spotted, and Fancy Pelargoniums are indispensable for conservatory decoration. For this purpose it is not advisable to grow specimens such as are seen at exhibitions, and at the same time do not have straggling meagre examples, but follow a middle course by growing them of a medium size and with only as much tying as will keep them shapely. Plants desired to flower in May should now have the requisite number of sticks placed to them, bringing out the shoots to their places so as to admit air and light to the centre. Young vigorous-growing plants may have the points pinched out; older shoots that do not grow so fast will, especially for early flowering, be better without stopping. Late-flowered plants will now require shifting into their full-sized pots, ramming the soil quite firmly, as when lightly potted they do not flower satisfactorily. Afford no more water than is needed to keep the soil moist, inclining to the dry rather than a wet condition. A light airy position near the glass should be afforded; and a temperature of 40° at night, or a little less, and about 5° more by day is suitable, admitting air freely at every favourable opportunity.

Roses in Pots.—Any intended addition to the number of plants grown should at once be potted, giving plenty of drainage, and employing good turfy loam with about a fifth of well-decayed manure and a sixth of sharp sand. Pot firmly, pruning at once, and place them in a cold pit where frost can be excluded, allowing them to come into flower without being excited in heat the first season. The ordinary stock should be kept cool, but where they will be safe from frost, completing any surface dressing or shifting into larger pots without delay, in the latter case only removing the old drainage and any loose soil.

Herbaceous Calceolarias.—The earliest plants will require transferring from their small pots before they become rootbound to 6 or 7-inch pots. If this be delayed they become stunted and will not grow freely afterwards. No plants repay for attention better than these, keeping them steadily advancing in growth and free from aphides. Rich thoroughly reduced turfy loam, a fourth of decayed

manure and leaf soil, with a little sand, form a suitable compost, potting rather firmly. A cool moist situation is suitable, where they can have a position near the glass, plenty of air when the weather is favourable, and sufficient heat only to exclude frost.

Pelargoniums of the Zonal and Nosegay varieties intended for spring flowering should have a night temperature of 40° to 45°, and that or a little more in the daytime. Be careful in the application of water for some time yet. Potting should be attended to where it is required, not giving too much root space, potting firmly and employing turfy loam. Stop the shoots when necessary to secure compact habit, and tie the growths well out, keeping the plants near to the glass, and the house well ventilated. Remove the flowers of plants intended for spring or early summer flowering.

NOTES ON VILLA AND SUBURBAN GARDENING.

KITCHEN GARDEN.

Forcing Rhubarb and Seakale.—Most gardens, however small, contain a few strong clumps of both these, and especially the former, some of which may be forced. Although such varieties of Rhubarb as Prince Albert and Johnson's St. Martin, are the best for forcing, any of the later varieties will well repay the trouble taken. Even the Giant Victoria, though it does not start readily, can eventually be induced to form a great number of stalks, which are of very superior flavour. Roots of any variety of Rhubarb and Seakale may be lifted and packed in rather closely under the staging of a forcing house and near to the hot-water pipes, or they may be potted or placed in boxes in a warm house. Any ordinary soil may be employed, and this should not be allowed to become dust dry. Two or three large clumps of Rhubarb are sometimes carefully lifted, packed in soil in large hampers or boxes, and placed in a warm cellar, the result being early and good produce. Seakale may be started in a garden frame on a gentle hotbed, but great care must be taken not to use rank fermenting material, or the roots will be injured and the produce be spindly. The Seakale will require to be grown in the dark, but this is immaterial in the case of the Rhubarb. In either instance the best results are obtained from those roots forced where they were grown. All that is required for this work are a few pots for the Seakale and deep boxes or tubs for the Rhubarb (ordinary flour or cement tubs with their bottoms converted into lids are very suitable), and a quantity of leaves and manure which have previously been laid in a heap for a few days. Commence operations by lightly forking up the soil round the crowns, place over these the covers with their lids on, and then bank round the fermenting material so as to bury the covers. Avoid making a great heap, preferring rather to cover a few roots at intervals of a fortnight. If leaves only are used hurdles will be necessary to keep them together. A trial stick should be thrust into the bed and frequently examined, and, should the point be found uncomfortably hot to the hand, the heap must at once be opened for a few days.

Forcing Asparagus.—A bottom heat of about 75° is very suitable for all forced vegetables. A still milder hotbed is suitable for forcing Asparagus, and where it is in contemplation to break up an old bed the roots should be utilised for forcing and then thrown away. The growth from these old plants is produced very freely, but is usually much inferior to that obtained from younger plants. Of course no one would think of breaking up good beds unless there are others to succeed them. When the hotbed is found to be in a suitable condition a layer of rather moist good soil is spread over the surface, on this the carefully lifted roots are closely laid and covered with more soil, working this well in among the roots. The soil being in a moist state and the heat also moist no water will be required at first, but a thorough supply of warm water should be given on the appearance of dryness. If the heat be mild cover the frame closely with mats or litter till the growth is pushing through the soil, when as much light as possible must be admitted, as most people prefer green to blanched Asparagus. The frames should be covered during the nights, and should the bottom heat decline below 70° a lining of fresh heating material should be given, as the growth is liable to be hard if grown in a low temperature.

Asparagus, Rhubarb, and Seakale may all be forwarded considerably where growing if sufficiently protected with rough litter. The last-

named may be either covered with the usual pots, or good-sized ordinary flower pots, or again with ashes to a good depth, then earthing prior to covering with litter.

Manuring and Digging.—It is a moot point with many as to when to manure and dig ground, and the opinions given on the subject are very bewildering to amateurs. Much depends upon the nature of the soil with regard to digging, but in most instances the manure would be best applied in the spring rather than its principal soluble manurial properties should be washed away by the repeated heavy rains. Far better shake it up into a large heap with sloping sides, a good layer of soil underneath, and more of it well beaten over the outside of the heaps, thereby enclosing the ammonia and much increasing the bulk of the manure. The manure may be wheeled into the garden during frosty weather, and be there placed in heaps and covered with earth till required.

It is advisable to roughly turn up stiff clayey soil to submit it to the pulverising influence of the frosts and winds, re-digging some time after a severe frost, working in the manure to be given. Sandy soils if dug in the autumn lose by repeated soakings much more than they gain by exposure, and both these and those that are somewhat rich, but which generally work well, had better be left unmanured and undug till near such times as they are to be cropped. Trenching being a slow operation, for which there is seldom time in the spring, should be performed on all favourable occasions. Here again manure is often worked in either too early or too deeply, and both practices should be guarded against. The manure wheeled on should be autumn-trenched during frosty weather, and be turned in afterwards.

TRADE CATALOGUES RECEIVED.

James Veitch & Sons, King's Road, Chelsea.—*Catalogue of Vegetable and Flower Seeds (Illustrated), and Lists of Gladioli and Hardy Plants.*

Sutton & Sons, Reading.—*The Amateurs' Guide and Seed Catalogue for 1881. Highly illustrated.*

James Carter & Co., High Holborn, London.—*Vade-Mecum and Catalogue of Flower and Vegetable Seeds. Highly illustrated.*

B. S. Williams, Upper Holloway, London, N.—*Catalogue of Flower and Vegetable Seeds.*

Harrison & Sons, Leicester.—*Wholesale Catalogue of Vegetable Seeds.*

Martin Grashoff, Quedlinburg, and Westerhausen, Germany.—*Wholesale Trade Catalogue of Flower and Vegetable Seeds.*

Friedrich Spittel, Arnstadt, near Erfurt, Germany.—*Trade Catalogue of Flower and Vegetable Seeds.*



Books (Gardener).—There is no such work as that you name published at this office.

Market Punnets (J. Lyell).—If you inquire of some of the salesmen at the Manchester fruit and vegetable market they will inform you if the punnets are sold there; if they are not, you can obtain them from Mr. Munro, salesman, Covent Garden Market, London.

Large Apples (Inquirer).—Warner's King and Gloria Mundi are two of the largest. At the Hereford Show held last month the first-prize five fruits of the former weighed 7 lbs. 3 ozs.; second, 5 lbs. 7½ ozs.; and third, 4 lbs. 12½ ozs. In 1879 Gloria Mundi secured the first prize, the five fruits weighing 5 lbs. 10½ ozs. Warner's King is the most useful of the very large late Apples, the tree being a good grower and excellent bearer.

The Scotch Champion Potato (S.W.).—It is almost or quite impossible for anyone to give a description of this variety to enable you to distinguish it from others grown under the same name, especially if there is a close similarity between them. The tuber closely resembles that of the White Rock, is roundish in form, with deep eyes; the haulm is tall, erect, of a rather light green colour, with pointed leaflets, and continues green after that of the Rock has withered. You had better prove for yourself which is the best variety and discard the others, or purchase seed from a reliable source.

Mealy Bug on Vines (J. B.).—Read our reply to another correspondent, under the heading of "Vines in a Stove." The house must also be thoroughly cleansed, every portion of woodwork being washed, and the surface soil, if any, removed and fresh added. The plants and pots must also be carefully washed and repotted, or surface-dressed with fresh soil. After all you can do, however, in this respect the insects will appear again, and it is only by assiduously watching for them and perseveringly attacking them that the pest can be extirpated. Peruse carefully the several articles that have appeared on destroying mealy bug in the back numbers of the present volume, and follow the practice recommended that is most applicable to your case.

Sparmannia africana (Inquirers).—The leaf and flower you sent are

those of the old and attractive shrub named above. It is a native of South Africa, whence it was introduced to this country towards the close of the last century. The first plants or seeds were forwarded to Kew, and from these other gardens obtained their supply. The plant is named in honour of a Swedish traveller who introduced it. For flowering in winter and spring under culture in pots it is most effective, the growth being free, and the large trusses of flowers produced in profusion.

Growing Grapes without Fire Heat (F. W.).—That they can be so grown your own successful experience proves, as also does that of other cultivators. The sense in which your letter was understood by a correspondent as misleading was that there was no indication of the locality, and it is obvious that the Isle of Wight and the southern districts of the kingdom generally offer far greater chances of success by this mode of culture than do the much colder northern counties. We have seen Grapes fairly ripened during a favourable season in a house having no artificial heat in Nottinghamshire; but last year, although every effort was made to aid the ripening of the crop, it was worthless. A house is rendered doubly valuable when means are afforded for excluding frost and giving a little assistance to the Vines during their early stages of growth; the Grapes may afterwards be grown, if required, and ripened without fire heat, the locality and season being favourable. Much disappointment has been experienced in cold districts by orchard houses having been erected with no means of excluding frost from them in the spring when the trees were in blossom, and after all the expense that had been incurred good crops of fruit could not be produced until the structures were heated. Growing Grapes and other fruits in unheated houses is entirely a question of locality. In one district the plan will answer, in another it is quite unreliable; and the safe mode—the most economical in the end, and the most profitable—is to afford the means for supplying artificial heat when it is necessary.

Melons (J. E.).—Read's Scarlet-flesh and Eastnor Castle Green-flesh, which you name, are excellent free-growing and good setting varieties. It is not the nature of Melons to continue setting and swelling their fruits over a long period; but if an early crop is ripened and cut the same plants will, under good cultivation and attention, produce a second crop; but amateurs do not often accomplish this satisfactorily. It is no trouble for us to answer inquiries when we can do so usefully.

Propagating Frame (Amateur).—The frame to which you refer is very useful for raising seedlings and striking cuttings, and if you have space in your greenhouse for one you will find it of service to you. The value of the frame, however, depends on its management, and a fair knowledge of gardening and ordinary intelligence are only needed to work it satisfactorily. We know it has been employed with success by many amateurs, and only one failure has been brought to our notice, and this we suspect was not wholly the fault of the frame.

Uses of the Catalpas (W. Harris).—The species forming the genus *Catalpa* are more remarkable for their beauty than by the possession of particular economic qualities. *C. syriaca* is a handsome North American tree that thrives freely in this climate, and when in flower is unsurpassed. They are mostly of quick growth, and have a light grey-coloured wood of rather fine texture, and when well seasoned is said to be durable. It also admits of being very highly polished. The bark has the reputation of possessing stimulant and tonic qualities.

Soil for Cucumbers (Cucumber Soil).—As the soil you name is "very good" we think you will succeed in your object. Mix with it now a portion of soot, as much burnt refuse as you can obtain, a little decayed hothed manure, with a sprinkling of the fowl manure, and produce a heap as rough and open as possible, as fine, close, and fibreless soil is not good for Cucumbers. If in addition to this, which may form the bulk of the beds, you add layers of fresh turfy loam and manure as the roots protrude from the surface, you ought with otherwise suitable culture to succeed in growing good Cucumbers.

Manuring Apple Trees (Old Subscriber).—If the trees are not too old for renovation you cannot do better than carry out the plan you propose. You may apply the liquid of the strength you name in sufficient quantity to penetrate the soil to the depth of at least 2 feet. Merely wetting the surface to a depth of an inch or two will be of little avail, neither will much good be done by pouring the water close to the stems or within a few feet of them only. The roots have a greater spread than the branches, and their extremities are the most active in gathering food; the application must, therefore, be complete and thorough as far as the roots extend. This soaking, even without removing the grass, would do good; but if the trees make but little growth they would be still further benefited by removing the turf and a little surface soil also, adding an inch of fresh soil next the roots, burnt refuse of any kind being excellent, and a thick covering of rich manure, the liquid manure to be applied before spreading on the fresh compost. Remove any dead or cankered wood, and if the branches are covered with lichens dust them when wet, as after a drizzly day, with freshly slaked lime, or dress the stems and large branches with strong brine.

Dwarf Roses (A Subscriber).—The following are all good varieties; but the last named, and possibly some of the others if they grow strongly, may need pegging down. Prune them all rather closely in March, and the following year, instead of pruning so closely, peg down some of the stronger growths, and you will have a fine display of flowers. Marie Banmann, Charles Lefebvre, La France, Baronne de Rothschild, Louis Van Houtte, Etienne Levet, Alfred Colomb, François Michelon, Marie Rady, Madame Victor Verdier, Marquise de Castellane, A. K. Williams, May Quennell, Marie Finger, Star of Waltham, La Rosière, Général Jacqueminot, Duchess of Bedford, Duchesse de Vallombrosa, Mrs. Baker, Madame Lacharme, Sir Garnet Wolseley, Mons. E. Y. Teas, and Gloire de Dijon.

Vines in a Stove (A Twelve-years Subscriber).—If you must grow stove plants, and keep the house warm and moist throughout the year, you ought not to be expected to grow Grapes in the same house. Vines require much more air than do stove plants, also a period of rest in winter, and these they must have or they will not produce good Grapes however suitable the border may be. It appears you are able to afford the Vines some rest this year, and by all means do so; it will benefit them, but they cannot be satisfactory if they have not rest, the wood being matured every year. Greenhouse plants and Vines may, with good management, be grown successfully in the same structure, but stove plants and Vines cannot, as the former require a high temperature, considerable atmospheric moisture, and often but little ventilation—conditions that are totally unsuitable for Vines. When Vines and plants are grown together it is often an advantage to have the houses so constructed that the Vines can be trained outside after the wood is matured, and there remain, being protected if necessary for three or four months. You cannot have any better instructions for eradicating mealy bug than have appeared in our columns during the last six months. When the Vines are pruned, dress them thoroughly with a strong solution of soft soap or Gishurst compound, 5 or 6 ozs. of either being dissolved

in a gallon of water, adding thereto an ounce of paraffin, the wash to be used as hot as the hand can bear and applied with a brush. This scrubbing, thoroughly done, is more effectual for cleansing Vines than painting them with any pigment. If you have mealy bug on the plants the insects are almost certain to spread to the Vines in the same house.

Vine Shoots Injured—Galvanised Wire (Civis).—The spots on the shoots are not the eggs of insects. The bark appears to have been injured as if the Vines had been seriously attacked with thrips. The wood is not well ripened. We presume you removed most of the injured portions when pruning, and you cannot do better than wash the rods with the solution recommended to other correspondents. Instead of most of the writers on the subject of galvanised wire disagreeing with you, the majority of them confirmed your statement as to the wire being injurious. Injuries some of it undoubtedly is, and especially in certain positions. You will find some notes on the subject in the present issue, and others will follow which we think will not be uninteresting.

Heating a Greenhouse (H. A. M.).—Your question is not sufficiently clear. As we understand your letter you wish to form a greenhouse on the top of your house, to be heated from a kitchen range 18 feet below. There will be no difficulty in this. If you send 3d. in postage stamps to the publisher, and ask him to send you No. 769 of the Journal, you will find an illustration of a viney heated from a kitchen boiler; and if you adopt the same principle, taking the flow pipe from the top of the boiler direct to the greenhouse, then round it, the return passing down by the side of the flow and into the bottom of the boiler, the water will circulate. Without knowing the size, length, and height, both at the front and back of your proposed greenhouse, or to the apex if it is a span-roof, also the aspect and exposure, no one can inform you how much piping will be required to heat it.

Zonal Pelargonium Guillon Mangilli (X. X.).—Since Mr. Taylor's commendatory notes of this variety were published on page 544 we have received several letters asking where plants can be purchased, as the writers have not been able to find the name in catalogues. We know the variety to be an excellent one, and those who have plants of it for disposal would do well to advertise them. Mr. Taylor is not a nurseryman, and we are not justified in forwarding letters to him from those who wish to obtain plants of the variety in question.

Names of Fruit (No Name).—1, Not recognised; 2, Fearn's Pippin; 3, Winter Colman; 4, Benrre d'Arenberg. (E. Banks).—1 is Cobham; 2, too shrivelled for identification.

Names of Plants (Inquirers).—1 is *Sparmannia africana* (see above); 2 very much shrivelled, but resembles *Prenanthes elegantissima*. (C. J. A.).—The specimen was quite insufficient for identification, but it is not *Libonia floribunda*. Send a flowering spray. (R. P. O.).—The flower was much crushed, but is like *Oncidium cheiroporum*, which requires a stove temperature. (Prima).—The scarlet flower was so much shrivelled as to be almost unrecognisable, but we think it is *Bonvardia Hogarth*. Dry cotton wool is the worst material in which to pack flowers, as it extracts the moisture from them. We do not undertake to name varieties of florists' flowers, and the blooms of *Chrysanthemums* sent are far too imperfect for identification; we can only say No. 1 resembles James Salter, No. 2 Mrs. George Rundle, and 3, Gloire de Toulouse. (J. S. Uper).—*Zygopetalum Mackaili*. (Mrs. Axe).—It is impossible to identify the shrub from the few shrivelled leaves you have sent.



POULTRY, PIGEON, AND BEE CHRONICLE.

THE CULTIVATION OF LAND BY ANIMAL POWER.

STEAM culture is now made available to a much greater extent than at any former period, and there is no doubt that it will increase in the estimation of the home farmer under certain circumstances, although there are but few home farms that contain arable land sufficient to make it good policy to obtain and maintain a full force of steam tackle to do the cultivation thereon without a considerable force of animal power in addition. Again, upon small farms, such as those which have previously employed two or three teams of horses, steam power is now often called in to supplement the animal power without any estimate of it or proportionate reduction of the number of animals employed, it being considered best to hire steam as occasion may require; but, owing in a great measure to the fickleness of our climate, the demand for hired steam tackle often occurs in many directions at the same time. Now this fact makes it very difficult for the home farmer to know how and to what extent the animal power of the farm can be diminished. This being true, it is fast becoming advisable to further consider how far and in what way the animal power on the farm may be increased, or so changed and managed as to be able to do without steam power, and to accomplish the various work connected with tillage of the land in good season and in a practical manner, thus avoiding any of the disadvantage and disappointment of not being able to secure the use

of steam power at the periods when most necessary. There are two periods of the year when it is especially important that the cultivating power should be equal to the work to be done—namely, the spring seed time for Lent corn, the preparation for early root crops, and again the autumn cultivation of corn stubbles during and immediately after harvest.

We have now arrived at the point of our subject, as to how far the animal power of the farm can be made efficient for the cultivation of the land at every season of the year, for it is positively intolerable that the success of our tillage and seeding of the crops in due season should be dependant upon the occasional use of steam power in aid of the animal power, unless it can be obtained to a certainty when most required. This is extremely important as a matter of farm management; for let us consider how short is the period when the extra work for steam power is required either in the spring or autumn, for the time in our climate cannot often be numbered by weeks—in fact, frequently only by days, when the weather proves favourable or otherwise. The home farmer will therefore be enabled to see the advantage of a sufficiency of animal power to make him independent of hiring steam tackle upon farms not of sufficient acreage to employ steam tackle as the chief motive power on the farm. The next point is, What resources we have in animal power? For the past twelve or fifteen years the use of oxen has declined except in certain districts, where they are still held in estimation, and used by the farmers for tillage of the land. Horses have, however, during the same period advanced in price, although upon a great many large farms steam tackle has displaced a considerable number. In the absence of steam power we have to choose between horses or oxen, or some of each, and we have particularly noticed that points for discussion have arisen between their advocates as to the merits of both kinds of animals for farm work; but it has generally been put as follows:—"Horses *versus* oxen." We see no reason why the matter should be discussed in this way, for whenever we have had an opportunity of joining in a discussion where our opinion has been requested, so far from placing them one against the other, we have for many years and up to the present time advocated the use of both, except under peculiar circumstances. The points, then, which naturally arise before we could state the proportion in which horses should be used depend upon a variety of circumstances, such as the soil and climate, the facility of obtaining good animals, and many others, which will come into notice during the statements we shall have to make before concluding the subject.

In certain districts of the kingdom no oxen are used for tillage work in consequence of the manner of using them, and their value in work as compared with horses is but little understood; we therefore propose to give the opinions of farmers who do use them, in order to draw some conclusions as to what improvements may be made in the management of oxen during the working period. Before doing this, however, we wish to call the attention of the home farmer to the mode of management at an early period of the present century, so that if any points are suggested worth our notice we may avail ourselves of them to a certain extent. About thirty years ago we were present at a "farmer's club," when the subject of "The advantages of working oxen as compared with horses for farming purposes" was introduced by a practical farmer, who commenced his observations by stating that "he had employed oxen both for tillage work as well as waggon work for a period of over forty years. He had worked seven oxen in a broad-wheel waggon for a number of years, fetched thirty-five sacks of Wheat a distance of ten miles, and this had induced others to follow his example. When he worked them on the roads the animals were cued or shod, otherwise whilst cultivating the land they were worked without shoeing. On the last farm he had in occupation, consisting of 600 acres, he kept from five to seven horses and sixteen oxen, the latter ploughing 3 acres per day, and other work of tillage in addition; the oxen, being fed only upon grass in summer and roots and straw in winter, only cost about 4s. per week, being about half the cost of horses' keep. The oxen and horses were each broken-in to harness at three years old. The cost of a three-year-old steer was about half the cost of a three-year-old colt. Allow the latter to live to the age of fifteen years you get twelve years work from him—he then dies, sinking the whole of his value; whereas the oxen, although kept at the cheapest rate, will gain £1 per year. The casualties on oxen are very trivial compared with horses, for he had only lost five oxen during a period of fifty years; the cost of harness was much less than for horses, less for the veterinary charges; neither was shoeing required, except for road work. His mode of working oxen was to have six for a plough, using three at a time for half the day, working from 6 A.M. to 6 P.M. After this statement a resolution was passed, "That out of every three teams of horses generally

one may be discontinued, and a team of oxen substituted instead, to the great advantage of the farmer; also, that on many two-team farms a team of oxen may be worked."

Having now related the ideas which prevailed some thirty-five years ago we will refer to the subject as matters are at present, and give such recommendations as are now approved by practical farmers in various districts, but especially the western and south-western counties. Various breeds of cattle are used for labour in the field, and in our estimation they stand thus—Herefords first, then Sussex, next Devon, and lastly Shorthorns. On small occupations, where oxen would be used chiefly, they cannot be bred conveniently. They may, however, be purchased at three years old, and broken-in for work if required for constant use throughout the year. The manner of yoking the oxen in early times used to be by fastening the draught gear to the horns; in some cases they were yoked to the tip, and in others to the root of the horns. At the present time, however, the ox is usually made to draw by the shoulder like a horse; his head is then free and his motion natural, and in this way, too, they are more easily broken-in to labour. Oxen are not so well adapted for all soils and work as horses. We only recommend them as supplementary animal power in the absence of steam tackle. Upon the home farm, or any farm up to 300 or 400 acres of tillage land, they are best purchased at four years old, and having been broken to work; and they should be in good condition, fit to go into constant labour at once. When the oxen are substituted for steam power, as we recommend them, they are not required during the whole year; and therefore, instead of sending them into the straw yards for winter quarters as working animals for the next year, we prefer after autumn tillage and Wheat-sowings are finished to box them and feed for beef, making fresh purchases when required. The farmer will notice that we do not propose to make them the constant labourers on the farm like the horses. We resort to oxen in the spring to commence the tillage after an adverse autumn, such as we have had for several years past, when the autumn fallows could not be completed; otherwise we take them up on the edge of harvest, in order that during the harvest and until Wheat-sowing is completed they may assist the horses to cultivate the Wheat stubbles and all the land intended for Barley and early roots in the succeeding spring. We prefer to purchase oxen of full age and power, in order that, like the horses, they may be worked two to a plough without a driver, and in this way they will plough and do the work, harrowing and rolling, and take their part in the work, the same as the horses. To enable them to do this they must be fed at the same cost as the horses, and eared for by housing and grooming in the same manner, so that they may not only be able to do the work, but improve in condition and value at the same time, to be fed for beef in the winter months. Maize as well as oats are good flesh and muscle-forming food. Our importations of oxen from Spain and Portugal are excellent illustrations of what may be done by working and Maize-feeding simultaneously. There is, however, one drawback: when a worked ox draws from the shoulder it hardens the meat and deteriorates the value of the forequarters of beef, which shows the only advantage derived by yoking from the horns.

In making some comparisons between the horse and the ox it should be noted that the ox gains in value during work; but the horse diminishes unless he is sold at six years old, and having been broken to work at three years of age. The cost of horse harness is much greater, the veterinary charges, the shoeing charges greater, and the danger to life and limb are greater than with the ox. Oxen, however, are best adapted for dry friable land, such as loam, sand, gravelly soil with only small stones in it, and then they will not require cueing; but on strong loams with large flints thereon they cannot be worked regularly without cueing. In relation to cost of oxen: For the past ten years a pair of oxen in good working order have cost little more than one horse of good size and power fit for two-horse-ploughing work. We shall not enlarge upon the subject further at present, but may refer to it hereafter on the "Work on the Home Farm." We ask the home farmer to consider the advantages which oxen afford him as a supplementary tillage power, when from any circumstances he may be unable to obtain the full advantage of immediate access to steam tackle.

WORK ON THE HOME FARM.

Horse Labour.—This now consists of finishing the fallow ploughing on those farms where it has not already been completed, in order that the land may receive the full benefit to be derived by alternations of frost and rain. The remainder of the land to be sown with Wheat after roots fed should be ploughed and sown simultaneously as fast as the sheep have cleared the land. Some farmers object to sowing Wheat in January, but we have always found the earliest season is the safest if 3 bushels of seed per acre are sown, as the crop does not suffer so much from weeds as when sown later in the spring.

Some of the horses may be employed in carting gravel to roads, carting earth to heap from the roadsides, banks, and borders of the fences, to remain there until quite mellow and weeds and grass roots entirely decayed. It will then be useful in placing at the bottom of pens where cattle and pigs are fed, and also at the bottom of cattle boxes and yards with the manure accumulating. In this manner the earth does not weaken the manure, but absorbs what would otherwise be lost. When carted away and cast up together they make one of the best composts for dressing grass land that can be manufactured upon the farm. This leads us to the subject of winter management of the park land or pastures, for it is not uncommon to find tufts of grass which have been left and refused by the cattle. It is therefore important how these are to be disposed of—whether to pass the scythe over, or to put on the land a few poor cattle as gnawers and to eat it down, because well-fed cattle in other respects cannot be made to touch it without great loss in condition. As we have before now observed, they will eat it better when salt has been laid on. Whatever plan may be adopted, it is still better not to have any of this rough food left on the pastures, which raises the question, How is it to be avoided? We reply, The home farmer should remember that the cause of these coarse grass bunches is the quantity of cattle droppings that is left undisturbed during the summer months. We advise that about once a week the droppings should be collected and taken to a heap of earth, in order to make a compost for dressing the grass land, or otherwise a person employed every few days to knock and spread the droppings during the summer. In this way we may have the pastures fed as smooth and as close as the turf on a cricket ground. This is not only best for the pastures, but it is almost the only way to make the parklands ornamental and sightly as they should be.

Hand Labour.—The odd horse and cart must attend to the work of fetching hay and straw for the dairy cows and fattening cattle, also roots from the storeheap or from the fields where grown, hay and straw for feeding being never better than when cut fresh from the ricks daily. Hedging, banking, and ditching will be going on in the enclosed districts, also cutting the undergrowth in the woodlands. Planting hedges and repairing live fences should now be done. The most difficult part of live-fence repairing is where trees grow on the banks or near, in which case the usual scrub wood dies away. We recommend for planting under trees the Myrobalan or Cherry Plum (*Prunus Myrobalana*), and by planting these the live fences may be kept entire without the unsightly wood fencing, which is also costly to keep in repair. Iron hurdles may be used, but they destroy the uniformity and are otherwise objectionable.

Shepherds now are variously employed, for horned Somerset ewes have lambed and only need the usual attention. The Dorset downs are beginning to lamb, and folds or yards should now be made up comfortable and well littered in a sheltered position. There is no better convenience for a lambing yard than when near an old barn, so that lambs or ewes which require extra attention may be cared for in the hospital barn. The Hampshire downs will commence lambing in January, and their lambing quarters should be prepared—the sooner the better, as the ewes may be fed with hay and straw in them at night some time previous to the lambing. The only objection seems to be in the tendency to lameness amongst the ewes when fed in yards in wet weather. It is well to place some earth at the bottom of the dead fold, and the sheep will lie drier, especially if the land is a little sloping.

The fattening sheep, the horned ewes and lambs, should now be fed with cut roots in troughs; and, in order to insure a continuation of the root supply, not less than ten days' or a fortnight's provision of roots should be previously cleaned and prepared ready for cutting, in order that bad weather may not interfere with the women's or men's work in preparing and heaping the roots. It must be remembered after sheep have been fed at the troughs they could not be fed otherwise except at serious loss and inconvenience in many respects. The food for horned ewes and lambs will be cut Swedes for the former and cut Carrots or Cabbage for the latter. In both cases cake and bean or barley meal should be strewed over and mixed with the cut roots, but the roots should be passed through the cutter twice for the lambs. The ewes may have broad Clover or Saintfoin hay, but the lambs should have Dutch Clover or mixed Trefoil hay, as it is finer and softer, and they can eat it better at an early age. We recommend that all Swedes and early roots should be looked over by the women. They should also fork out all roots of Couch grass, Docks, and other root weeds, as these are easily seen when the leaves of the roots are fallen; and we would request the home farmer to remember that the first cost in the removal of Couch, &c., is always the least.

TOY PIGEONS—THE TRUMPETER.

THERE is no variety of Pigeons which within our own memory has so much changed, and, from a fancier's point of view, been so much improved, as the Trumpeter. We say from a fancier's point of view, for, looked at aesthetically, we think the old English type of Trumpeter was decidedly a prettier bird than those of the Russian style at present exhibited. The origin of the Trumpeter's name is not so obscure as that of most fancy Pigeons. Before playing to the hen the cock bows himself down and makes a long hoarse coo not very unlike the sound of an indifferent trumpeter.

We have had small African Doves whose gestures and notes are very similar. We possessed a flight of white English Trumpeters in childhood twenty years ago; extremely beautiful they were, active on the wing, like their relations the Swallows, and altogether much lighter and more agile than the exhibition Trumpeters of to-day. They bred well and were good mothers, indeed a variety which might well be kept for their prettiness and useful qualities as table birds combined. Some time later, about fourteen years ago we think, a wonderful importation of Russian Trumpeters arrived in this country. They were introduced by Mr. Baily of Mount Street, and were, we understood, brought with the greatest difficulty across the Steppes from Siberia. Strange it seems that so savage a region should afford a race of birds which must undoubtedly long have been bred with care up to an artificial standard of merit! Many of them perished on the way, but those which arrived on English soil perfectly astonished Pigeon fanciers with their size and their wonderful development of Trumpeter points. As soon as they had sufficiently recovered from their travels to be exhibited they at once drove the old type of Trumpeter out of the field. For a time it was attempted to have separate classes for birds of the two types; but this plan soon failed, inasmuch as there was no real distinction between them, the only difference being great development of already acknowledged points in the new birds. The Russian breed has now quite superseded the other as exhibition birds, and those shown and seen in good lofts all mainly owe their origin to this or some other importation.

The points of the Trumpeter are not many; but to be understood it should be seen, and almost defies description. The Trumpeter is a heavy bird and now by no means active, for the feathers of its rose, like those of the Poland fowls' tuft, much impede its vision. It has a shell or crown at the back of its head, such as we have described when speaking of the Nun, which should come as much round the head as possible on each side. One of its most distinctive points, however, is the rose—a tuft of feathers rising from the root of the beak. This in the old birds merely formed an irregular tuft, but in the modern Trumpeter it is of immense size and completely circular, almost covering the beak and the whole of the head within the crowns. Great weight is given in judging to the size and regularity of this rose. The other most characteristic point is foot-feathering. A good Trumpeter is heavily feathered or hocked on the leg, and then has beautiful flat feathers extending like little wings from the feet. These two latter points should in our opinion be equally considered, and not all given to rose, which we have frequently seen some good judges do. The colours of Trumpeters were formerly many, the Whites being the best. The great Russian importation were nearly all mottled—i.e., black and white, or black; these two colours have consequently become the most popular, which we regret, for the Whites are extremely beautiful. At the last Crystal Palace Show, however, two magnificent Whites were shown, and quite held their own against all colours. It is not easy to imagine much more beautiful Pigeons. As with some other white Pigeons, we believe that young birds are often speckled, and only moult out pure white after two or three years. Of course this is not the case with such old-established breeds as White Fantails, but the Trumpeters and Jacobins, the various colours of which have been much interbred, are seldom pure white their first year. Yellows and Reds were formerly known, and we have seen a Blue Trumpeter depicted on a very antique mosaic; but they have now disappeared, and to reproduce them of a type to compete with the wonderful mottled birds which we now see in the prize pen, would take much time. Of course, care is requisite to keep the foot feathers of Trumpeters in nice order and condition, which adds greatly to their beauty, and which is often not sufficiently appreciated by judges. Trumpeters are fitted rather for the aviary and loft than to fly at complete liberty, for few Pigeons so easily fall a prey to cats. They breed well when not too highly bred, and in their improved state are a profitable variety for domestic use.—C.

BELFAST POULTRY SHOW.

THIS, the leading Irish Show, was held on the Wednesday and Thursday of last week. Both in the number of entries and in the quality of the birds shown, it was considerably ahead of former years. The Victoria Horse Bazaar is a large well-lighted building, very suitable for a show. The arrangements were admirably carried out under the direction of Mr. Waters, who is a model Secretary, and a Committee of fanciers well up to their work and with their hearts in it. The poultry were all on the lower tier, the Pigeons above; and as the floors of the Pigeon pens did not cover the back part of the tops of the poultry pens, a rather trying cross light was the result. Mr. Leno judged the poultry, a task which made a pretty hard day's work for him; Mr. Fulton the Pigeons. At this Show the attendance

is never very large, so that the Committee have to depend chiefly upon the entry fees to make up the prize money. There were many cups presented for competition, but the class prizes were merely £1, 10s., and 5s., with an entry fee of 3s. 6d. The success which has hitherto attended the efforts of the Belfast fanciers affords proof that exhibitors do not much regard the amount of the prize money offered; and that the knowledge that their birds will be properly cared for and judged by competent men, is a sufficient inducement to lead them to exhibit.

DORKINGS opened the poultry classes, and were upon the whole a wonderful collection. There were five cups or special prizes offered for this breed; No. 1 for the best Dorking in the Any age classes went to Messrs. Smyth for the cockerel first in the coloured Dorking cock class. Cup No. 2, for the best pen of coloured Dorkings in the chicken class, also went to Londonderry, won by the first-prize pen of chickens. The cockerel in this pen also took the third special prize, a medal offered for the best coloured Dorking cockerel or pullet in the Show, while the pair completed the Messrs. Smyth's list of trophies by winning the fourth special offered for the best pen in the chicken class. The fifth, a cup for the best pen of Silver-Grey chickens, went to Mr. Shaw's third-prize pen. Except in the case of the Brahmas which (in consequence of the entries being guaranteed to be not less than eighty by a Dublin fancier) had separate classes for adults and chickens, the general classes were open to birds of any age. Dorkings and Cochins had, however, chicken classes in addition to the general classes. *Coloured Dorking*.—Cocks (six) beyond the winners contained nothing very special. First, cup, and medal (Smyth) was one of the best cockerels we have seen this year, large and square in frame, well set down on his legs, moderate in comb. Second (King) a fine old bird, not quite in condition, and rather loose in comb. Third (King) an old bird of moderate quality; h.c. (Smyth) a promising young cockerel; h.c., Herdman. *Hens* (nine) were one of the best classes we have seen of late. First (King) a grand massive hen good in all points. Second (Herdman) also a very fine hen, rather better in colour but not so short in leg as first. Third (Smyth) very fine in quality and very good in feet, but not so large as the other two; h.c., Smyth (2) were both winners at the Palace as pullets last year, but not yet fully grown; h.c., Herdman; c., Smyth. *Any Other Colour Cocks* (eight) were not a very remarkable class, and were all Silver-Greys. First (Ovens) a large bird for a Silver-Grey, but yellow on back and heavy in comb. Second (Mulligan) rather deficient in size, also rather yellow for a cockerel. Third (Shaw) a very shapely bird, short in leg though rather gone in the feet; h.c. (Miss Drevar) the best colour in the class, but too small and heavy in comb. *Hens* (nine) were a very fair class. First (Shaw) a very shapely hen of good size and beautiful colour, but rather dark in feet. Second (Metge) another good coloured hen, not so shapely as the first, and also inclined to be dark in feet. Third (Ovens) large but brown; h.c., Mulligan, Charley. *Any Variety Cockerel and Pullet* (fourteen).—An extraordinary class which would have been a credit to any show. First, cup, and special (Smyth) a very grand pair indeed of coloured birds which have not, we believe, been out before, and would deserve all that could be said in their favour. £40 was, we believe, offered and refused for the cockerel the first day of the Show. Second (Smyth) another very fine pair of similar style, sold we believe for £25. Third and Silver-Grey cup (Shaw) a neat pair of Silver-Greys, the cockerel very clear in colour and good all round; v.h.c. (King), the cup Palace and Birmingham cockerel and a pullet that has won prizes at all three leading shows, but fairly defeated here; v.h.c. (Smyth), the cockerel the Dairy Show winner; h.c., Shaw.

BRAHMAS, strange to say, just came up to the guaranteed number—eighty. *Dark Cocks* (ten) contained some good birds. All three prizes went to Mr. Comyns. First being the bird h.c. at Birmingham greatly improved by the fortnight's growth of feather. Second the third Dairy Show cockerel of last year, also improved in condition since his v.h.c.'s at the Palace and Hull. Third the Cambridge cup cockerel of last season; c., Ashworth, Comyns. *Hens* (eleven) were hardly judged to our taste; all the honours again went to one exhibitor (Mr. Comyns), who was very successful at this Show. The Judge considered the class a good one. First and Brahma cup was, we believe, a fresh one; she is well marked, but heavy in head and not quite clear in colour, for which reasons she might well have given way to second, the Birmingham h.c. bird, now moulted out and in fine form. Third was one of the recently purchased Shuter stock, very clear on back and wings but failing in breast; v.h.c. (Comyns) a clear Silver-Grey, well marked but small, and comb awry; h.c., Comyns; c., Ashworth. *Cockerels* (fourteen) were not remarkable as a class, but there were some good birds in it. First (Erskine) good in size, shape, and colour, but very heavily hocked. Second (Comyns) the v.h.c. Palace bird, looking yellow in the trying/cross light already referred to. Third (Charley) a shapely bird, neat in head, but not large and rather short of feather; h.c. (Comyns), the Palace sixth; c., Comyns. *Pullets* (thirteen) were a good class, the winners were we believe, chiefly of Miss Shuter's stock, shown by Mr. Comyns, who scored first, second, third, and three h.c.'s with his six entries. The third was in the same position as at Hull, and one of the h.c.'s was similarly honoured at Birmingham; h.c. (Henshall), very nice in colour and fair in marking; h.c., Ashworth. *Light Cocks* (six) had nothing of note beyond the winner. First (Birch) a very grand bird in all points except his comb, which was far too large. Second (Herdman) much weaker in head and good in shape and colour, but

not nearly so large as the winner. Third (Birch) a little hollow in chest and heavy in comb, otherwise a good one. *Hens* (nine) showed the common failing of impurity of colour. First (Birch) a very massive shapely hen, too warm in colour and hocked. Second (Dugan) another large hocked hen neat in head, also showing a buff tinge. Third (D. Sullivan) small but clear in colour; v.h.c., Graham; h.c., Herdman, Birch. *Cockerels* (nine) were moderate as a class. First (Birch) a medium-sized bird, good in all points except colour, which was rather warm on his shoulders. Second (Herdman) another neat bird, very dark in hackle and yellow. Third (Herdman) a fair all-round bird short of foot feather. *Pullets* (nine).—First (Birch) a good-sized shapely pullet, clear in colour and neat in head. Second (Herdman) also a good pullet, very fine in head. Third (Mercer) rather yellow on the shoulders and hocked, very neat in head.

COCHINS.—*Cinnamon or Buff*.—Cocks were a fair class of eight. First (Stoney) a Buff cock of medium colour and size, good in foot feather, without hock. Second (Robertson) a larger bird, not nearly so even in colour, and hocked. Third (Pye) a cockerel similar in stamp to the winner, but hocked; h.c., Thomson. *Hens* (seven) failed chiefly in colour. First (C. Brown) a large shapely Cinnamon hen, not very even in colour. Second (Robertson) a very fine pullet of the dark shade, more even in colour than first. Third (Thomson) large, but not so good in shape and mossy; c., Hand. *Any other Colour*.—Cocks (eight) were a good average class. First (Bright) a Partridge cock, very rich in colour, good in shape and foot feather, with moderate hocks. Second (Robertson) another good Partridge cock. Third (Millner) a White, rather loose in comb and his tail not good; h.c., C. Brown, Robertson. *Hens* (sixteen) were a good class. First (C. Brown) a Partridge, good in size and fair in marking of the old style, but not cushion enough and too much tail. Second (Robertson) another fairly marked Partridge, not so large as first. Third (Robertson) well marked but small; h.c., Millner (2, White); c., T. A. Bond (Black). *Cockerels and Pullets, Any Variety*.—A fair class only. First-and-cup (Pye) a neat pair of Buffs, the cockerel very even in colour, the pullet not so good in this respect. Second (Robertson) Partridge, the cockerel shapely and short in limb with fine foot feather, but with a few brown feathers on breast and hocked; the pullet good in size, fair in shape, excellent in marking and foot feather. Third (Bond) moderate Blacks; h.c., Mahony (Buff), ditto (Partridge), Bond (Black), C. Brown (Partridge).

SPANISH.—Cocks (fourteen) are always a strong class at Belfast, and though not quite up to the average this season were very good. First (Boulton) an old cock, large in face and lobe, but rather inclined to close up his eyes. Second (Begg) a cockerel, large in face and good in lobe, but his face not in show form. Third (Mulligan) a cockerel very good in quality of face and lobe, and this latter neatly rounded off—our choice of the class; h.c., Begg, long in face but narrow. *Hens* (thirteen) were another good class. First (Boulton) a hen good in quality of face and lobe, but hardly through her moult yet. Second (Mulligan) another good hen. Third (Mulligan) a pullet, a trifle narrow over the eye, but very large and smooth in lobe; h.c., Mulligan, Begg.

GAME.—Cocks (eight).—A good class for Ireland, which is rather behind in the Game fancy. First-and-cup (Chesters) a very fair Brown Red, good in reach and fine in head. Second (Chesters) also a stylish Brown Red. Third (Booth) Brown Red again, rather soft in feather; h.c., Graham (Black Red); c., Mason (Black Red). *Hens* (eight) were also a good class. First (Booth) a stylish Brown Red pullet in fine condition. Second (Mason) a Black Red, neat in head and hard in feather. Third (Chesters) Brown Red; h.c., Robertson, Booth (both Willow-legged Pile), Chesters (Brown Red).

HAMBURGS.—*Gold or Silver-spangled Cock and Hen* (eleven) were only moderate as a class. First (Crawford) Goldens, fair in marking and rich in colour; the cock's comb rather heavy. Second (Pickles) well-marked Silvers, neat in head, but the cock rough in lobe. Third (Crawford) moderate Goldens; h.c., Maclean (Silver); c., Collier, Ashworth (2) (all Silvers). *Gold or Silver-pencilled Cock or Hen* (six) again only a moderate class. First (Pickles) Silvers, clear in lobe, neat in comb, and fair in marking. Second (Clegg) fair Goldens. Third (Maclean) Goldens, neat in head and lobe; the hen rather heavy in marking; h.c., Ashworth, and c., Maclean (both Goldens). *Black Cock and Hen* (seven) were not a remarkable class. First (Ross) good in style and colour, moderate in lobe and comb. Second (Ross) bright in colour and good in lobe, but the cock rather heavy in comb. Third (Ashworth) rather pink in lobe; h.c., Bamford.

FRENCH.—*Any Variety Cock and Hen* (seventeen).—From their numbers may fairly claim two classes next year. There were nine pens of Houdans, five of Crèves, one La Flèche, and one Courtes Pates. First (Connor) were Crèves; the cock, the best of the two, a large bird, good in size and colour, but rather heavy in comb. Second (Wither) Houdans, good in size, crest, and comb. Third (O'Kelly) a fair pair of La Flèche; c., Kettlewell, Brinkley, Carter (all Houdans); Lindsay (Crèves).

POLISH.—*Any variety*.—Cock and Hen (seven) were a good class.—First (Charley) Goldens, good in crest, colour, and marking, but not quite in condition. Second (Lindsay) another pen of good Goldens. Third (Henry) Goldens again, the hen very large in crest; c., Sullivan (Golden), Millner (Silver).

ANY OTHER VARIETY EXCEPT BANTAMS.—Cock and Hen (nine) were made up of Malays (five), Brown Leghorns (two), Sultans (one), Moorfowl (one). First (Anderton) Sultans of fair quality

Second (Brinkley) fair Brown Leghorns. Third (Robertson) a good pair of Malays; c., Peirse Kelly (2, Malays and Brown Leghorns).

BANTAMS.—*Game, Black or Brown Reds.*—*Cock and Hen* (ten).—First-and-cup (Hand) were a neat little pair of Brown Reds, good in style and close in feather. Second (Shenton) very good Black Reds. Third (Streatch) another neat pair of Black Reds; h.c., Anderton, Shenton, Surgenor, and C. Russell (all Black Reds). *Game, Any Other Variety.*—*Cock and Hen* (five).—First (Surgenor) very smart willow-legged Piles. Second (Anderton) the same sort. Third (Anderton) also willow-legged Piles, too large for our taste.

ANY OTHER VARIETY.—*Cock and Hen* (nine) contained some good birds. First (Dunkerly) a very evenly marked pair of Silver-laced. Second (Anderton) Black Rosecombs. Third (Dunkerly) moderate Gold-laced; h.c., Thomson & Harrison (Japanese), Law (Cuckoo), Connor (Black Rosecombs).

DUCKS.—*Aylesbury* (ten) were a good class, all the winners being fine pairs. First, Mullan; second, Charley; third, Sullivan; c., Mullan, Charley. *Rouen* (ten) were a very good class. First and cup for Ducks other than Pekin, Birch; second, McCartney; third, Booth; h.c., Mulligan, Robertson. *Rouen hatched in 1880* were a large class of seventeen, but contained nothing remarkable in merit. First, Birch; second, McCartney; third, Bridgford; h.c., Stoney, Bridgford, Todd (2); c., Kettlewell. *Pekin* (eight), in Ireland as elsewhere, seem to be making their way, and were a good class. First-and-cup (Birch) were best in colour and carriage and large in size; second (Birch) and third (Campbell) were also large good pairs; h.c., Peirse, Kelly. *Any Other Variety* only numbered three. Of these the first (Booth) were Mandarins, the second (Carleton) and third (Robertson) Black East Indian.

TURKEYS.—*Cock and Hen* (six) were a fairly good class. First (Birch) also took the cup for Turkeys and Geese, and the special prize for the heaviest Turkey in the Show, the cockerel turning the scale at 32 lbs. Second (Glen), the cockerel in this pen weighed 26 lbs. Third, Dugan; h.c., Todd.

GEESE (nine) were a very good average class. First and second, Birch; third, Mullan; h.c., Carleton, Robertson.

PIGEONS.

POUTERS.—*Blue or Black Pied Cock* (six).—First-and-cup (Wither) an excellent Blue in fine condition. Second (Thorburn) also Blue and very good. Third (Combe) Black, fine in colour and marking; h.c., Montgomery; c., Sproull. *Any Other Colour Cock* (seven).—First (Montgomery) very lengthy White, good limb and crop, and in good show. Second (Sullivan) a very fine Pigeon, giving first a fair run for place. Third (Kilroy) best condition, but lost to the winner in crop and girth; h.c., Thorburn and Wither; c., Kilroy and Millner. *Any Other Colour Hen* (seven).—First (Combe) a fine Yellow, a very scarce colour in Pouters now; an easy win. Second, Sproull; third (Sproull) a good Blue, not in show, flights crossed. Extra third, Thorburn; h.c., Wither and Henry; c., Millner.

CARRIERS.—*Cock* (four).—First (Montgomery) a stout Black, fine beak wattle; but Mr. Montgomery, we fancy, could show a better all-round one. Second (Dunkerly) another stout one, not so large in wattle as first. Third (Montgomery) a good Dun; c., Montgomery. *Hen* (four).—First (Montgomery) a nice stout hen, grand in length of face and beak, wants time for development of eye. Second (Montgomery) Black, good fair hen. Third (Montgomery) a Blue.

BARBS.—*Cock and Hen, Any Colour* (six).—All winners black and good in skull. First, Montgomery. Second (Montgomery) a well-known bird, looks cankered in ear. Third, Dowling.

SHORT-FACED TUMBLERS.—*Cock or Hen* (three).—Only three entries and good. First, Dunkerly. Second, Dunkerly. Third, Kidd.

JACOBS.—*Red Cock* (sixteen).—First-and-cup (Shaw) very good and close in feather, last year's winner and nicely shown. Second (Shaw) good skull and hood, mane, and chain. A hard Red to beat. Third (Shaw) a frequent winner; we have seen him in better feather; very compact and showy; v.h.c., Pyper and Dale; h.c., Shaw and Roberts; c., Shaw. *Hen* (fourteen).—First (Shaw) close and compact, but for general qualities we prefer second or v.h.c. Second (Shaw) a good hen and hard to beat; very compact, close, and of good shape. Third (Shaw) moderate; we liked the v.h.c. of same owner much better; v.h.c. (Shaw), fine head, colour, and nice hen; h.c., Pyper and Dale; c., Shaw. *Yellow Cock* (twelve).—First (Pyper) good colour, compact, and nice condition; wants more feather. Second (Jeffery) great in feather but looked slovenly; a fine stock bird. Third (Roberts) good colour, face, and short of hood; h.c., Pyper; c., Jeffery and Dowling. *Hen* (eighteen).—First (Dowling) a small Pigeon, short of hood, good colour and chain. Second (McGibbon) our choice for winner, a real good all-round hen; the only point wanting being size. Third (Pyper) a good hen; h.c., Jeffery Pyper (2), Dale; c., Coates, Shaw. *Black Cock or Hen* (twelve).—First (Jeffery) a grand all-round Black; one of the best, we believe the Palace winner; fine colour and all over good. Second (Roberts) would not show, but when roused looked well. Third (Shaw) a good hen, the Kilmarnock winner; v.h.c. (Shaw) a good little hen, Weyman and Buchanan; h.c. (Jeffery), good colour and hood; Young; c., Coates. *White Cock* (ten).—A good class. First-and-cup (Waters) a very grand White cock, immense feather and very short face. Second (Dale) very short of feather. Third (Shean), very nice Pigeon, and we prefer it to second; only loses in size; h.c., Waters and Shean. *Hen* (eleven).—First (Dale) very long and close

in feather; a very bad face. Second (Shean) fine face, hood, mane, and chain; latter might be closer. Third (Shean) a fair hen; 516 (Waters) deserved a card; h.c., Waters, Weyman, and Buchanan; c., Waters (3). *Any Other Colour Cock or Hen* (seventeen).—First (Shaw) a fine Strawberry hen, excellent shape, and rare face. Second (Waters) very close but short of feather. Third (Shean) very long feather, yet a far better Pigeon than second; h.c., Shaw and Shean; c., Jeffery and Pyper.

FANTAILS.—*Cock* (eleven).—First (W. & R. Anderson) a short-backed bird, fine motion and good tail. Second (Connor) a good bird. We preferred c. (Loversidge), not in the best condition though. Third (Hunter) short of tail feather but very nervous. *Hen* (fourteen).—First-and-cup (Shaw) a grand hen and well deserved her place. Second (Warhurst) a very fine Blue hen, one of the best of the colour we have seen. Third (Loversidge) very large, but condition poor; c., Anderson.

OWLS.—*English Cock* (ten).—First-and-cup (Woods) a wonderfully headed Silver, an easy win. Second (Wardle) good Blue. Third (Wardle) good Blue; c., Bright and Thorburn. *Hen* (six).—First (Dunkerly) a very nice hen, wants time to develop, but will improve. Second (Dale) a nice profile. Third (Woods) fair hen; c., Woods and Dale.

TURBITS.—*Cock* (eleven).—First (Wardle) good Blue, fine condition, good in head, peak full, bars. Second (Evans) a Black, and a very good one. Third (Dale) fair Blue; h.c., Dunkerly; c., Gilmour and Thorburn. *Hen* (seven).—First (Woods) good Blue, well shown. Second (Thorburn) a very fair Red. Third, Dowling.

TRUMPETERS.—*Cock or Hen* (nine).—Grand class. First-and-cup (Hutchinson) a magnificent black rose, hood and foot feather superb. Second (same owner) a Mottle. Third (same owner) the best White we ever saw; h.c., Waters; c., Hutchinson. *Cock or Hen bred in 1880* (seven).—Grand class. First (Hutchinson) a fine Mottle, or what would be called a Splash in other varieties, but a wonderful Pigeon. Second, same owner; third, same owner; h.c., Hutchinson; c., Hutchinson.

DRAGOONS.—*Cock* (seven).—First (Smith) good Silver. Second (McKenzie) grand-coloured Yellow. Third (Smith) Blue. *Hen* (five).—First-and-cup (Smith) a grand Dragoon, and easy win. Second (McKenzie) one of the best Yellows we have seen. Third (Smith) good Grizzle.

ANTWERPS.—*Cock or Hen* (eleven).—First (Jennings) Red Chequer cock; second, Wade; third, Dale; c., Millner and Wade.

FLYING TUMBLERS.—*Balds.*—*Cock or Hen* (eleven).—Good class. First (Woods) a good bird, clean cut, and poor flights; thighs, and colour black. Second (Magee) a very fair Blue. Third (Montgomery) a poor Black; h.c., Magee; c., Rogers and Thorburn. *Beards.*—*Cock or Hen* (six).—First-and-cup (Woods) a fine Blue Beard. Second (Woods) good bird. Third, Dunkerly; v.h.c., Edwardson; c., Rogers. *Self-coloured.*—*Cock or Hen* (seven).—First (Woods) Yellow, and good. Second (Crawford) a very sound Red. Third (Wardle) a good Black; v.h.c., Crawford. *Blue-barred or Any Other Colour.*—*Cock or Hen.*—First (Kidd) Black Mottle, in fine condition. Second (R. Woods) Yellow Mottle; we prefer to winner, as yellow is far harder to produce sound than black. Third (R. Wood) Red Mottle hen; h.c., R. Wood; c., R. Wood.

NUNS.—*Cock or Hen* (fourteen).—First (Young) Black, grand colour, hard flights, bib, and condition. Second (Dowling) good colour. Third Shaw; c., Jeffery.

MAGPIES.—*Cock or Hen* (eleven).—First (Dale) a wonderfully sound Red. Second (Bridgford) a Black, and one of the best we have seen. Third (Montgomery) good Yellow; h.c., Knox and Thorburn.

ANY OTHER VARIETY.—*Cock or Hen* (twelve).—First (Stoney) a rare Swallow, black. Second (Millner) a good Ice. Third (Shaw) a Fairy Spot.

MARGATE SHOW.

A SHOW of Poultry, Pigeons, and Cage Birds was held at the Hall-by-the-Sea, Margate, on the 14th and 15th inst. The weather was most unfavourable on both days, in consequence of which there were but few visitors, and it is feared the Show may not be a success in a pecuniary way. In classes where there were less than five entries the first prizes were withheld. The Show was, of course, a small one, being open to the counties of Kent, Surrey, and Sussex only. There were 177 pens of poultry and 135 of Pigeons. The total number of entries, including cage birds and dairy produce, was 425. Mr. Tegetmeier judged the poultry and Pigeons. His awards in the poultry classes were not satisfactory in some cases. The arrangements, under the Secretary, Mr. Lane-Sear, were excellent throughout.

Dorkings, Coloured.—The best pen (Goodwin) was only commended. **Silver-Greys.**—Cup (Cheeseman), a very good pen. The *Cochins* were poor on the whole. The *Bufs* numbered ten pens. The cup pen (Jenkins) were large, and good in colour and feather, but the hen was ragged and her wings slipped. Their tails were not neat or soft enough. The third-prize pen (Smart) contained a very large good hen, but she looked sickly about the head; this pen should have been second. **Brakmas.**—Dark, were moderate, the best pen, containing a beautifully pencilled hen, was passed over. First, Brown; second, Jones; third, Pearce. **Light.**—A much better class. First-and-cup (Cobb) good, but the hen was rather splashed with black on the back. The cock's hackle was heavily striped. Second (Ayliffe) and third (Windred) were nice

pens. A pair sent too late for competition by Rev. E. H. Morgan were far away from the rest. The cock was grand in shape, size, and feather. *Game* very good indeed; the cup went to a capital pair of close-feathered Piles belonging to Mr. J. Elgar. Among the *Hamburgs* the winners were a good pen of Blacks shown by Mr. Howlett. *Spanish* moderate, second (Shaxby) better than cup pen (Francis). *Minorcas* and *Polands* fair. The winning *Houdans* (Miss Neame) were good. *Game Bantams* neat and good. The best pen in the class (Morgan), which were first at Canterbury last week, were only highly commended. In any other variety of Bantams Mrs. Brassey won the cup with a pretty pair of Dark Japanese. Mr. G. Sanger exhibited a curious pair of Jungle Fowls (*Gallus furcatus*) about the size of Bantams. The cock had a transparent-looking comb free from serrations, and curiously tinted with mauve, pink, green, and yellow. In the selling classes there was a splendid pair of White Cochin pullets (Todd), also a good pair of White-crested Black *Polands* (Howlett). Mr. H. Stephens was first in class for single cock with a very nice La Flèche cockerel.

The *Pigeons* were good on the whole and well judged. Among the Carriers and Pouters were capital specimens. All three prizes in the latter class went to Mr. Gill, while in the former Mr. Hall won in the two classes for Black or Dun, and Mr. Stephens in the "other coloured class" with a fine Blue.

VARIETIES.

MR. NORRIS'S DARK BRAHMA PULLET.—Many well-known fanciers have testified, since the Birmingham Show, that they were acquainted with this bird from her infancy, and have no doubt as to her being a chicken of this year. It is not in every case that a bird's age can be so clearly established, and we are very pleased that Mr. Norris has been able to adduce such overwhelming testimony. It seems to us to have been a somewhat similar case to the well-known one of the "Three Black Crows." Mr. Norris remarked to a friend, that "when the bird was running with a lot of his choice hens, she looked as large as any of them." This passed from mouth to mouth until it was magnified into a statement that Mr. Norris said he had found the pullet amongst a lot of old hens. This reached the ears of the protestor, and in an evil moment he paid his £1 and entered his protest. We were glad to see that some of the correspondents of a contemporary joined with us in reprobating the system adopted at Birmingham in reference to Mr. Norris's two birds. We hope never again to be witnesses of such discussions. Anything more detrimental to the interests of a healthful and innocent pursuit we can hardly imagine.

— THE A. B. C. POULTRY BOOK by Mrs. M. A. WILSON (Cassell, Petter, Galpin, & Co.) is, as its name indicates, arranged in the form of an encyclopedia. The authoress has, in addition to her own experience and knowledge, made use of Mr. Lewis Wright's large work on poultry as a source of information. The result is a very handy reference volume, containing a great deal that is useful in an easily accessible form. In such a work one could not expect the fullest detail as to fancy points, &c., or a very profound knowledge of the subjects treated upon, but the authoress seems to have grasped the cardinal points in most cases. Every young fancier should at once add this handbook to his poultry library.

— GOATS' MILK.—A meeting of members of the British Goat Society was recently held at its rooms, 446, Strand, to hear a paper by Dr. R. J. Lee, F.R.C.P. (one of the physicians to the Children's Hospital), on "Goats' Milk, and its Utility as a Food for Infants and Invalids." Professor Simonds presided. Mr. H. S. Holmes Pegler, Hon. Sec., reported that the Society now consists of 171 members, including the Duke of Wellington, Baroness Burdett-Coutts, Lady Cave, Lady Pigot, the Earl of Rosslyn, the Earl of Shaftesbury, Sir Henry Peek, Bart., M.P., Mr. James Howard, M.P., twenty-four ladies, twenty clergymen, and eleven doctors. Dr. Lee, in the course of his paper, stated that his sympathy in favour of a more general use of Goats' milk as a source of nourishment had been excited chiefly by a long acquaintance with the children of the working classes and their means of nourishment. In his own experience children fed on Goats' milk had thriven most satisfactorily, even when they had not thriven on cows' milk. He said the peculiarity about this milk is that the cream globules are smaller than in cows' milk; and the milk being more concentrated, the cream globules are contained in a more perfect state of emulsion, in consequence of which hardly any cream rises to the surface in allowing the milk to stand

for twelve hours or longer. This quality of the milk explained the fact that it was more easily digested than cows' milk. With regard to the use of Goats' milk for medicinal purposes, there was every reason in favour of making an extensive trial of it.

WINTERING BEES.

ADVANCED bee-keepers on the continent and in America are now alive to the importance of protecting their bees in winter. In America and some parts of the continent the winters are long and severe. In Great Britain the winters, generally speaking, are shorter and less severe, but more changeable and precarious. For fifteen years I have not failed to advise the bee-keepers of this country to cover their hives well and warmly in winter, and it is pleasant to know that the best practitioners of the movable comb system in this country are now beginning to winter their bees in hives kept warm by chaff. The chaff hive is an American invention, and is a very great and valuable improvement on all that has preceded it. Doubtless the clever active bee-keepers of this country will in time bring the chaff practice up to a point of excellence that cannot be surpassed. All bee-keepers should know and remember that bees suffer much from cold in winter, and that good coverings are beneficial and helpful in early spring when breeding commences.

I met a gentleman the other day who is an enthusiast among bar-frame hives and bees. His plan of ventilating the hives in winter in order to let out the moisture is very good. He removes the crown boards from his hives, and enlarges them at the tops by using ekes 4 inches deep. First covering the frames with some kind of porous cloth, he fills the ekes with chaff, which absorbs the moisture of the bees and carries it out of the hives. Bees in hives well ventilated and surrounded with 4 inches of chaff or soft hay, will have some comfort in wintry weather.

The operations of Nature and their habits of cleanliness prompt bees to leave their hives often in mild weather during the winter months, and in doing so there is frequently a great loss of life. Some winters and some days are more destructive of bee life than others. If the atmosphere and the ground around hives are cold when the bees come out in winter they are destroyed. The powers of flight in bees are lessened by cold; and even in summer weather bees carrying heavy loads are unable to fly home if a dark cloud chills the atmosphere about them. In their winter dances outside their hives many bees fall to the ground, become chilled at the first touch, and never rise. In this way hives lose numbers in winter and become weaker. If there come a sudden change or lower temperature while bees are flying about their doors in winter the sacrifice of life is very great. In large apiaries of hives standing close together the ground is thickly sprinkled with chilled bees after a flight; and in front of single hives scores of bees may be seen all but motionless—some on stalks of grass, some on twigs, quite helpless after making efforts to get off the cold soil that chilled them. At one time I thought that bees thus falling about the doors of their hives were diseased and could not be saved from death. However, I am now fully convinced that nothing is the matter with them but cold; and therefore I sweep them together in heaps, put them into flower pots, warm them into life and vigour at the kitchen fire, and let them fly home. The author of a German book on bees published a few months ago suggests the desirability of spreading some warm materials in front of hives in winter, to prevent the bees that touch the ground being quickly chilled into helplessness. This idea is a good one and practical. A piece of roofing felt, an old door mat, or a layer of sawdust under the flightboards and in front of hives, would doubtless save the lives of many bees. Some two years ago a Thorn hedge on the south side of my apiary was removed, and a brick wall 9 feet high was built in its place. About a dozen of my hives are wintered on the north side of this wall, which prevents the rays of the sun warming the ground near them. Far more bees are found chilled and motionless about these hives than about those in sunny positions. I am now fully convinced that sunny sheltered places are better than shaded ones for bees that are allowed to take outdoor exercise in winter. The American winters are so cold that bee-keepers there have found it is advantageous to winter their bees in cellars of dwelling houses or in dark thick-walled houses built for that purpose. The practice of confining bees to their hives and wintering them in dwelling houses has never, to my knowledge, been fairly and extensively tried in this country. Sometimes my father wintered weak hives indoors, and occasionally I have done it successfully. Strong colonies well covered are able to withstand and come through the severest of English winters.

The watchword of earnest apiarians seeking great results will be, for a few years, "Strong hives in autumn," and if they follow

his they will become successful men, and know that with strong populous stocks in autumn the dangers and losses of winter life will be neither feared nor felt.—A. PETTIGREW.

NOTES ON BEES IN THE NORTH OF IRELAND.

LEST the readers of this Journal should think that good taste and industry have left our country, I venture at the end of the season to describe my experience with our bees in 1879-1880. It has been stated so often in this Journal that 1879 was disastrous amongst bees that I need hardly endorse it as regards Ireland. Rain and wind prevailed all the honey season here; but for three or four seasons it has been so unpropitious for honey gathering that nearly all the old apiarians have been discouraged.

Still this may have good results, as they who will keep bees for pleasure or profit must adopt another system. Thanks to this Journal this new principle I have been following for three or four seasons back with great satisfaction; for, terrible as 1879 was, I had one stock that sent off three casts and another two while my neighbours had none—not surprising with their straw skeps and trough of dry sugar all winter. But best of all, under the modern plan I drove a hive into a straw skep containing a few empty combs in September 1879. This season the bees made a splendid stock, and although not at all numerous this spring they very soon filled the skep to the bottom, and also a very large glass super, which I took from them in September, drove the bees, and obtained all the honey. I united them with a prosperous stock in a Woodbury hive, which is now very strong. I fed the former abundantly in autumn, winter, and spring, with syrup made from 4 lbs. of loaf sugar to a quart of water, one spoonful of vinegar, and half a glass of best whisky. This mixture I gave them in dishfuls of 2 or 3 lbs. well covered with small pieces of sticks. I can now perform the operations of driving, uniting, and transferring—all, I may say, through your instructions and with perseverance. As I have more to say on this subject I will reserve it for another communication.—COMBER, *Co. Down*.

CONGRESS OF GERMAN AND AUSTRIAN BEE-KEEPERS.

HAVING attended the late meeting convened by German bee-masters, and taken some part in it as an exhibitor and winner of a State prize medal, I thought some account of the apiarian appliances there exhibited and of the proceedings generally might be acceptable to your readers. This year was the twenty-fifth anniversary of these meetings, and therefore a time of unusual interest.

The city of Cologne was well chosen for the Congress. It is convenient of access from all parts of Germany and elsewhere, and possesses many attractions. Every hospitality was shown the apiarians; all public places were freely thrown open to our inspection. The place selected for the meeting was the Victoria Hall, in the Waidmarkt, which was indicated by a number of flags and banners with appropriate signs of bee industry, announcing that the "Wandering Society of Bee-keepers" were holding their annual Exhibition within.

At eleven o'clock on the opening day the Burgomaster, Dr. Becker, opened the Exhibition in the large hall with a short address to the Executive Committee, in which he expressed the hope that the present Exhibition, together with the interesting papers to be discussed, would prove a special means of advancing apiculture in the sister provinces of Rhineland and Westphalia. Many of the most prominent guests were already present—viz., Dr. Dzierzon, Professor Keller of Milan, Mr. Gatter, Editor of a Vienna paper, and others. These were formally introduced and cordially welcomed. Dr. Dzierzon's entry was announced by a few strains of appropriate music. After the opening ceremony, which occupied little more than a quarter of an hour, the Committee and guests went into the smaller hall adjoining to view the Exhibition.

The exhibits had not all arrived, but there were sufficient to show that the whole affair would be a great success both as regards the quantity and quality of the objects already placed. A well-arranged catalogue of fifty-two pages with entries from 165 exhibitors was of great assistance. Throughout the next day arrivals of objects were frequent, so that the spaces appropriated were filled almost to overflowing. The hives with living bees were located in a garden adjoining the Exhibition hall. In the evening of this day the number of the more prominent guests was greatly added to. Among these arrivals were Mr. Vogel, Count Pfest, and others. It was a novel sight to an Englishman to witness these bee-fathers meet; they seemed so delighted to see each other, and cordially embraced, thus practically carrying out the Scripture injunction, "Salute one another with an holy kiss." In a future issue I will give a description of some of the more prominent exhibits.—ALFRED NEIGHBOUR.

OUR LETTER BOX.

Book (*Ramatho*).—The "Pigeon Book" by B. P. Brent, published at this

office, price 1s. 7d. post free, is precisely what you require. The fourth edition is in the press, and will be ready in a few weeks.

Poultry Shows (*Expert*).—We are obliged by your offer, but our intention is only to publish reports of a few shows that are of wide and general importance, as our space will be more usefully occupied with practical matter that will be of greater service to the majority of our readers.

Salt for Dairy Cows (*C. J. A.*).—Salt should never be mixed with the food of dairy cows, as too much may be given; they should always have access to rock salt in lumps, and will then never injure themselves. It is not advisable to mix salt with inferior or damaged hay when cut into chaff, but it will pay well to use the flavouring spice sold by Bowick & Co. of Bedford. It should be mixed with the chaff for twenty-four hours before feeding time. Swedes when pitted in the field in small conical heaps will keep well covered with earth only, but they should be cast together with roots attached and the greens twisted off by hand. No knife should ever be allowed to touch the roots or stems. They will then keep well without any ventilation, as often required in large store heaps of roots.

Horse Drills and Ploughs (*Hodge*).—One-horse drills for both Turnip seed and corn may be obtained of nearly all the best and largest implement makers in the kingdom, but some of them are made too wide and heavy for one horse when manure is drilled with the seed and corn, particularly upon hilly land. No one-horse drill should be wider than 3 feet 6 inches between the wheels. Makers' names—Messrs. Reeves & Son, Westbury, Wilts; and Tasker & Son, Waterloo Works, near Andover, Hants. One-horse ploughs will not answer upon stiff loamy soils, except in summer tillage where the land has been previously moved and worked. Upon light, dry, friable land we have employed them for thirty years past; but since the double-furrow ploughs have been introduced we prefer them, because one man can direct the two horses, whereas two single ploughs to do the same work require two men. There has been no special trial of one-horse ploughs for some years past at the Royal Meetings. Howards of Bedford make excellent one-horse ploughs.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain.
1880. Dec.		Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Sun.	12	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
	12	30.130	44.5	40.9	N.W.	43.5	50.0	36.1	33.6	33.8	
	13	29.976	49.4	46.2	W.	43.4	51.8	41.6	58.2	35.6	
	14	29.923	41.4	40.3	N.W.	44.6	43.6	40.8	48.4	41.4	
	15	29.659	47.2	47.0	S.W.	43.6	52.0	34.4	52.7	53.9	
	16	29.580	46.3	44.6	W.	44.2	51.9	43.5	54.0	38.6	
	17	29.748	36.7	34.8	N.E.	42.2	49.0	34.6	44.5	31.7	
	18	29.590	31.6	35.1	W.	41.7	46.4	34.7	52.7	34.0	
Means.		29.793	43.0	41.3		43.3	48.0	38.0	56.3	35.6	
										0.831	

REMARKS.

12th.—Very fine with bright sunshine all day; clear moonlight evening.
13th.—Overcast and dull, rather windy.
14th.—Very damp overcast day, rain at intervals; finer in evening—moonlight.
15th.—Slight fog and drizzle early part of morning, rain heavier from 9 A.M. till 6 P.M.; fine evening and moonlight.
16th.—Rain until evening, then fine and cold; dark for a short time at 1 P.M.
17th.—Fine but overcast and cold, few flakes of snow at 10 A.M.; snow at 9 P.M.
18th.—Morning fine with few gleams of sunshine; rain commenced at 1.45 P.M. and continued slightly for several hours; moonlight night.

A damp uncomfortable week, although the temperature remains above the average.—G. J. SYMONS.

COVENT GARDEN MARKET.—DECEMBER 22.

OUR Market is well supplied with all ordinary goods, and although this is Christmas week trade is anything but brisk.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples.....	½ sieve	2 6 to 4 6	Melons.....	each	0 0 to 0 0
Apricots.....	box	0 0 0 0	Nectarines..	dozen	0 0 0 0
Cherries.....	½ lb.	0 0 0 0	Oranges.....	½ 100	0 0 0 0
Chestnuts.....	bushel	12 0 16 0	Peaches.....	dozen	0 0 0 0
Figs.....	dozen	0 0 0 0	Pears, kitchen..	dozen	2 0 3 0
Filberts.....	½ lb.	0 0 0 0	Pears, dessert ..	dozen	2 0 4 0
Cobs.....	½ lb.	2 0 0 0	Pine Apples...	½ lb.	1 0 2 6
Gooseberries...	½ sieve	0 0 0 0	Piums.....	½ sieve	0 0 0 0
Grapes.....	½ lb.	2 0 5 0	Walnuts.....	bushel	0 0 0 0
Lemons.....	½ 100	12 0 18 0	ditto.....	½ 100	0 0 0 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes.....	dozen	2 0 to 4 0	Mushrooms.....	punnet	1 0 to 1 6
Asparagus.....	bundle	0 0 0 0	Mustard & Cress..	punnet	0 2 0 3
Beans, Kidney...	½ 100	1 0 1 6	Onions.....	bushel	3 6 5 0
Beet, Red.....	dozen	1 0 2 0	Pickling.....	quart	0 0 0 0
Broccoli.....	bundle	0 9 1 6	Parsley.....	doz. bunches	6 0 0 0
Brussels Sprouts..	½ sieve	1 9 2 0	Parsnips.....	dozen	1 0 2 0
Cabbage.....	dozen	0 6 1 0	Peas.....	quart	0 0 0 0
Carrots.....	bunch	0 4 0 6	Potatoes.....	bushel	3 9 4 0
Capsicums.....	½ 100	1 6 2 0	Kidney.....	bushel	4 0 4 6
Cauliflowers.....	dozen	0 0 3 6	Radishes.....	doz. bunches	1 6 2 0
Celery.....	bundle	1 6 2 0	Rhubarb.....	bundle	0 4 0 8
Coleworts.....	doz. bunches	2 0 4 0	Salsafy.....	bundle	1 0 0 0
Cucumbers.....	each	0 4 0 10	Scorzoneria.....	bundle	1 6 0 0
Endive.....	dozen	1 0 2 0	Seakale.....	basket	3 0 3 6
Fennel.....	bunch	0 3 0 0	Shallots.....	½ lb.	0 3 0 0
Garlic.....	½ lb.	0 6 0 0	Spinach.....	bushel	3 0 0 0
Herbs.....	bunch	0 2 0 0	Turnips.....	bunch	0 4 0 0
Leeks.....	bunch	0 3 0 4	Vegetable Marrows	each	0 2 0 0



30th	TH	2ND SUNDAY AFTER CHRISTMAS.
31st	F	
1st	S	
2nd	SUN	
3rd	M	
4th	TU	
5th	W	

STOCK-TAKING.

ONE of the most universal of customs, and one of the best—indeed one that is essential to the conduct of business and the welfare of families, consists in what is known as “stock-taking”—a winding-up of accounts, tracing at the same time the causes of failures, if any, and noting the elements that have contributed to success.

There are few people, however humble their circumstances, who do not in some rude way take a retrospective glance over a closing year, and compare their present position with their circumstances of twelve months previously. Others are more precise; they not only make a general comparison of their position now and then, but, by a careful system of recording events and the circumstances affecting them, they can trace a failure to its source and better understand what has been the root of an achieved success than could possibly be done by trusting to memory alone.

In all well-conducted trade establishments the everyday events are recorded with accuracy and punctuality, and at the close of the year the exact position of the business, its progress or decline, its profit and loss, can be determined, together with the contributory causes that have produced the results. The tracing of failures to their sources is one of the most important exercises a man can engage in. Dwelling on success is pleasant, and mankind are prone to indulge in that practice—to rest in the thought of what has been accomplished instead of devoting the mind to what has yet to be achieved.

Stock-taking on a systematic principle is regarded by a vast number of people as necessary in large trades, but in the small concerns of every man's life it is not thought to be of consequence. Nothing can be more erroneous than such an idea. No useful work in which a man is engaged can be too trivial for notice; its nature, the objects sought, the means employed, and the results attained should be recorded, and information of the most practical value and lasting worth will be obtained. This applies to workers in every vocation, and to none more forcibly than those engaged in the cultivation of the soil—horticulture and agriculture. “The worth of a State in the long run is the worth of the individuals composing it,” is a great truth which should be indelibly impressed on the mind of every man who reads these pages; and the remark may be properly and specially applied to the world of horticulture. Its character, usefulness, and advancement depends on the work of every man engaged in it—on the soundness, thoroughness, and accuracy of that work. Societies may, and indeed have, done much good, and the teachings of the

press have been of inestimable value; but, after all, honest and excellent work, which meets in the most satisfactory manner the requirements of families at home, is the best teacher, and is more effectual, more useful, and more advantageous, regarded in a broad aspect, than that devoted to the glitter of shows. If showing is the chief object of the owner of a garden, it is the duty of a gardener to carry out that object assiduously and perseveringly, and he will at the same time give private satisfaction—which is essentially in that case a “home requirement”—and gain public appreciation. But, on the other hand, if showing is the object of a gardener only, the employer giving no encouragement to the practice, then a mistake is made if the former persists in riding his hobby horse, which will sooner or later throw him in the dust. Gardening, then, which from the employer's point of view has been abused, is no longer indulged in, the owner applying his wealth to other purposes. By this cause alone—devoting the resources of an employer towards an object that has not his sympathy, gardening has to a very sensible extent suffered, and the means for carrying out the art in its higher aspects have in hundreds if not thousands of cases been abridged. The prosperity, therefore, of gardening emphatically depends on the character of every man individually who is engaged in it. Let every gardener, then, take stock of his position and arrive at a sound judgment as to the most judicious mode of performing his duties. Let him remember that from various causes many people are not so rich as they seem, that the profits of trade have been minimised and rents curtailed, that the luxuries of life are not so readily attainable as formerly, and he must be willing to conform to the changed circumstances until the recurrence of better times.

Further, it will be well to recognise the fact that society is every day becoming more commercialised. Old customs, good as they are, cannot be retained because they are old, and full money's worth is in everything expected for money. Many a gardener is at this moment uncomfortable because he has not the necessary means afforded him for performing his duties as he would wish; but it is certain that many employers are equally uncomfortable because they are unable to do what they desire in the various departments of their establishments.

It is unfortunately too true that not a few able, industrious, conscientious gardeners have difficulties almost unbearable to contend with; they may, however, well consider that, hard as they feel their lot to be, there are many still more unfortunate than themselves—hundreds of them, who would rush to fill a vacancy if created. A gardener's life is very much of a lottery regarded from one point of view. With friends and fortune and “luck,” a man finds himself in a good position early in life, while others wait or wander for years before their turns come. Still, the true course is to plod on trustfully, hopefully; a man may wait too long and wander too far—like an able gardener of the north, who waited for a “great place” until his savings were nearly exhausted, then went to London to seek friends and found himself in a garret near one of the great railway termini, and was glad to “do anything” to raise his rent of 6s. a week and find bread for his wife and six children. This is an “owre true tale,” and there are numbers of men who have waited and wandered until they could wait no longer nor wander farther, and have had to leave the ranks of their craft.

It is not to be expected that those who have been so

unfortunate will accept the truth of Dr. Johnson's observation, that "all the complaints which are made of the world are unjust. I never knew a man of merit neglected. It was generally by his own fault that he failed of success." Yet assuredly those words contain much force, and should be pondered over until the full significance of the remark is appreciated by all young men.

The pith of the above sentence is contained in the word "merit," and its right interpretation. It is not what a man thinks of himself, but what others think of him, by which a true estimate of his character is formed. Work that a smart young gardener might deem degrading, his employer might regard the cheerful performance of as a most meritorious act. It is much to be feared that there are a few young men left who would feel themselves subjected to a great indignity if requested to leave "the houses" for an hour or two and assist in digging a plot of ground. But what would they think of a young gardener earning £30 by washing a carriage, and attracting the favourable notice of a duke by shaking a carpet? Some years ago a young man who had received an excellent training in large gardening establishments, after waiting a year for a "big place," fortunately took a small one—a single-handed place. He determined to manage it well, and also had the good sense to assist in other work occasionally without being asked to do so, when he saw aid was needed. In the absence of the groom one day the carriage was wanted; the gentleman could harness the horse and drive, and he would have taken the dirty vehicle, but the gardener promptly intervened and washed it. The owner was so favourably impressed by the man's act that he added £10 a year to his wages. Three years afterwards a noble duke, after admiring the garden generally and some feature particularly, asked for the gardener. "There he is in the field helping to shake carpets," replied the gentleman. "Oh!" answered the duke, "if he can garden like this, and shake carpets like that, he will do for me." The man's single-handed career then ended, and his carpet-shaking too. That episode in a gardener's life was told to me by the gentleman in question, and is strictly true. Stock was taken of that young gardener as it is of all young men, and those who are the most punctual and attentive, industrious and willing, usually attain to good positions comparatively early in life.

Trusting to friends for assistance, and doing little beyond waiting for an opportunity, is not the true way to succeed. Taking stock of men, and wants, and means, and circumstances, and meeting them in the best possible way, is the true mode of promoting good will, and making the closing year pleasant and the opening year bright.—A VETERAN.

THE AUTUMN FLOWERING OF AURICULAS.

I SEE a correspondent at page 545 says the unusual quantity of autumn-blooming Auriculas does not seem to promise a good display in the spring. What is the reason that Auriculas bloom so much in autumn? I have not a large collection, and not 1 per cent. of the plants have bloomed, but then I give them abundance of water through the summer and autumn until the cold of winter stops the growth. Most spring-flowering plants and all spring-flowering Primulas have a tendency to bloom in autumn and early winter after a hot dry season; and if Auriculas have similar conditions it is only natural that they should also bloom at that time. These beautiful flowers are so easily cultivated that I should be glad to see them patronised by gardeners in the same way as Cinerarias, and made part of the usual stock of the garden. Will some florist kindly answer the above question?—R. P. B.

GALVANISED WIRE AND FRUIT TREES.

(Continued from page 569.)

A STEWARD and estate agent of great experience and ability once taught me a useful lesson. His object through life had been to gain a thorough knowledge of everything connected with his charge, including the management of land. Engaged in high-class farming he was purchasing soot largely, but had an idea that it was not wholly free from adulteration, and he was anxious to acquire a simple mode of testing the genuineness or otherwise of the article. It occurred to him that a chimney-sweep might be of service in this respect, and he determined to make friends with one—not a "master sweep," who had soot to sell—he was too

shrewd for that; but a journeyman, who had to climb up chimneys and crawl through flues, such labour then being legal. A silver coin and a compliment, ostensibly as an expression of satisfaction at the manner in which a dusky worker had performed his duty, easily led the man into a conversation which naturally glided into soot and its uses, and in reply to a question adroitly put as to how to know whether soot was pure or not, the good-humoured individual observed, "I'll tell you, sir, how you may always know. Push your hand into a heap and grasp a handful as tightly as possible. If it flies through your fingers and you can't hold it you may be certain the soot is pure; but if it cakes in your hand and you can hold it, you may be sure it is adulterated." The value of this information, obtained at the cost of half-a-crown, was estimated by the steward at £100, and his advice to others seeking knowledge was afterwards conveyed in the sentence, "If you want to know anything about soot make friends with a sweep."

"But what has this to do with galvanised wire and fruit trees?" someone will ask. It has nothing immediately to do with the subject, but the hint is worth recording; and it was the remembrance of it that led me to make some inquiries in search of a mode of reconciling the conflicting statements of several writers who could not be mistaken on the subject, that the wire in question was innocuous in some cases and decidedly injurious in others when employed in connection with fruit trees. Remembering the old steward's advice I determined to make friends—not with a sweep, but an intelligent mechanic, who had assisted in making and using hundreds of miles of galvanised wire. This man I found, and further learned that he was a lover of flowers; indeed, he has a greenhouse with a Vine in it, and I could see he felt quite proud when I went to "look at his plants."

The Vine I perceived was trained to copper wire. I asked in a casual manner why he did not use galvanised wire. He replied with an astonished look, "Do you think I'm a fool?" By way of assuring him of the contrary I told him that I had used the wire for years, and seen miles of it used for fruit trees of all kinds without injury, but that other gardeners had found it decidedly injurious. "Of course they have," was the reply; it *must* be injurious, and your wire had not been long in the acid, or it was old wire." I thought the moment now opportune to promise to give my friend a "few cuttings," and he became the more communicative. He earned the cuttings and had them, and his theory or practice is worth recording with another theory that has been suggested, and between the two a little light may possibly be thrown on an obscure subject.

The so-called galvanised wire I have found is not galvanised wire at all, it is simply iron wire drawn through a bath of molten zinc and coated. Neither electricity nor galvanism, as in the case of electro-plating, has anything to do with the process; but before the wire is placed in the zinc bath it is immersed in muriatic acid with the object of rendering the surface perfectly clean, as, if the slightest particle of grease or any extraneous matter adheres to it, it will not "take the zinc."

If the wire is coated when quite new, and free from rust, grease, or any other impurity, it has only to remain in the acid for a moment. This is the best wire, as it is the most tough and pliable, the fibre not being injured by the acid; but if some time has elapsed between the making of the wire and coating it, the surface becomes much soiled and a much longer immersion in the acid is imperative; to such an extent is this the case that occasionally the wire is quite saturated, and the fibre of the iron is destroyed; hence the brittleness of some wire, which all who have used it extensively will have experienced. Some wire, indeed, is so brittle or "rotten" that it cannot be used at all. A scientific friend informs me that the wire does not absorb the acid at all, but the workman says it does, and changes its colour throughout, as anyone can see who cuts it; he also says that all the acid absorbed by the wire "sweats" out of it again through the zinc; and further, if one end of a thick piece of galvanised iron is placed in the fire he can "see the escape of the acid through the zinc coating." Hence he concludes that the escaping acid that "works out" and comes in contact with vegetation must corrode it and destroy that portion of the branch or leaf that it touches. If this man's theory, derived wholly from practice and observation, is correct, we arrive at a reason why in some gardens the wire is injurious and in others not—namely, some of the wire employed has been saturated with the powerful acid, and other wire has only been slightly acted on by this cleansing medium; or some wire has been used when almost fresh from the bath, while another sample is older and time has been afforded for the escape of the poisonous fluid.

This accords with the remark of a correspondent, "W. W.," who has stated that there is "galvanised wire and galvanised wire," and that "the older the wire the more safe it is to use." He arrived

at this conclusion after many experiments for the purpose of selecting the best wire for the manufacture of Pea hurdles. "W. W." is undoubtedly right. Old galvanised wire is decidedly much less injurious than new, and some wire is almost certainly innocuous. This I have proved by experiment this summer, and I have seen the same result on a large scale in a garden in Surrey. A short wall was covered with two or three old Peach trees secured to galvanised wire; a year or two ago the wall was lengthened considerably, young trees planted and new wire used; this new wire injured the growths that touched it, while the growths attached to the old wire on the old portion of the wall were not affected in any way. This is a clear demonstration of the difference between some old and some new wire. On this aspect of the question it may perhaps be useful to record that my intelligent artisan friend states, that if new wire must be used it ought to be placed in water for a few days, and it will be much less liable to do injury to Vines or trees. The accuracy of this statement I have not proved, yet the man's idea is not an unreasonable one; but I have proved that wire two years old and partially oxidised has scarcely left a mark on the Vine shoots that were carefully tied to it, while new wire has corroded them deeply.

The question of tight or careless tying is wholly out of court in the case under notice, as the utmost care was taken and special means adopted guarding against this contingency or abrasion; in fact, all the shoots were tied alike and examined daily. For a number of years I attributed the injury that I read about to the above cause, as I had none myself where this wire was used. I am forced, then, against my previous convictions that the so-called galvanised wire is injurious under certain conditions, and I am convinced that the writers who have adduced testimony to that effect have not been mistaken.

Although I think the evidence of an intelligent flower-loving, wire-making artisan worthy of publication in connection with this subject, and while I think there may possibly be some grounds for the views he entertains, I do not consider that the absorption by the iron of the acid and its subsequent release satisfactorily accounts in all cases for the injury that has been done by the use of the wire. I have rendered his ideas as clearly as possible. They are, at the least, not illogical, and they open up a fresh line of thought in the consideration of a subject of a very debateable nature.

I will pursue the question further, for although it is admittedly difficult, yet it is of considerable importance to all who are engaged in the cultivation of plants and fruit.—J. WRIGHT.

(To be continued)

ECKLINVILLE SEEDLING APPLE.

MR. WITHERSPOON, on page 549, asks for information respecting the history of this Apple. If your correspondent refers to the last edition of the "Fruit Manual," he will find on page 49 the following note:—"The tree was raised at Ecklinville, four miles from Portaferry, and eighteen from Belfast, by a Scotch gardener of the name of Logan, more than half a century ago, and it is now extensively grown in Ireland and the south of Scotland." It has possibly spread from Scotland into Durham, and Mr. Witherspoon appears to have a quick eye for what is good, hence his approval of the excellent and very useful Apple. It is a market variety of the first order, as the trees come into bearing quickly and bear abundance of fruit of good appearance and quality. It may be grown successfully in the form of bushes on the Paradise stock, which is, perhaps, the best plan, or as standards on the Crab. It is a valuable and profitable variety, and should be freely planted.—A MARKET GROWER.

THE HORTICULTURAL ASPECT OF 1880.

THERE are various ways in which we may look back on the year that is now closing around us. The thoughtful cannot regard the lapse of time without serious reflection as to the way in which it has been used or abused. The merchant, the politician, the student all have their way of taking stock of the past and of forming their plans for the future. Why not, then, the horticulturist? and by that term I would imply all who love and take interest in a garden, regardless of whether their love is a scientific one or not. In fact I am inclined to think that they who have less of science in their horticulture have more of love for it. They work and plod on in their own quiet way, and get perhaps more enjoyment out of their garden than does the man who knows all theories and understands all the arcana of science; and it is well that it is so, for the latter are few, while the former are a mighty multitude. As one, then, who has a real love for a garden, and has, moreover, opportunities of seeing and hearing much concern-

ing horticulture, I would give a cursory view of the past year in a horticultural point of view.

We can hardly write of a year's horticulture without thinking of the Royal Horticultural Society; and I am sure everybody must admire the pluck and energy with which it holds on its way despite of all the difficulties it has to contend with. The incubus of the debenture-holders and the threatened action of the Law Courts have no power to make their able Secretary less cheery or their Council less confident. I remember some years ago when its affairs were at its worst, and "our Doctor" boldly essayed its secretaryship, I compared him to Curtius leaping into the gulf of the Forum. The comparison does not, however, hold good, for the gulf finished Curtius but the secretaryship has not finished the Doctor, but has rather given him a new lease. Happily now the unseemly squabbles that once disfigured it, the "cliqueism" which was rampant, and the many pitfalls that surrounded it on all sides, have vanished. It is probable some of these days that it will get rid of a portion of the white elephant, leaving only the tusks for itself—i.e., a large portion of the garden, which is indeed the delight of nurserymaids, but, as far as one can see, of no other earthly use, may be sold and the Society set free. It is gratifying to see how the confidence of the horticultural public is steadily given to it. Is a new flower, fruit, or vegetable raised, it finds its way there; and then how loyal, amidst much to discourage them, have the great metropolitan and suburban nurserymen been! One thing is, I think, however, to be deplored—the Society is Royal only in name: rarely do any of the members of the Royal Family visit its exhibitions and cheer its hard-working Council with their aid. I do not stop to compare this with the manner in which the members of foreign Royal Families support their horticultural shows. But almost anything else in our own country seems to enjoy the sunshine of Royal favour. Races, regattas, agricultural exhibitions, American midgetts, &c., all these are patronised, but not the Royal Horticultural Society. It is too much to hope that this may be bettered in the future. Of course horticulture ought to support its Society without this favour, but still a breath of encouragement from these high latitudes has an invigorating effect.

A considerable change has come over the fashion of gardening which has received a great impetus during the last year, I mean the decline of the bedding-out system. In every direction I have seen beds turfed over, and lamentations over the time and money that the bedding-out system wastes; but I think a word of warning on this point is necessary. We are a people of extremes. The swing of the pendulum is wide, and when it has gone to the utmost limit in one direction it is apt to go off to the other. Some few years ago maidens and matrons enveloped themselves in hideous crinolines, so that we poor mortals had a difficulty in finding sitting room in a railway carriage or in a pew in church; now they swathe themselves so tightly that they have the difficulty in sitting, not we. The dear creatures wore what they called bonnets, but it was hard to believe they had anything on their heads; now they are gradually coming back to the old poke, in the deep recesses of which they hide their faces. And so it is in gardening. The bedding-out system invaded every place. The nobleman and the squire set the example, and then parsons in their country vicarages, citizens in their suburban retreats, farmers, doctors, all went in for it. Lawns were destroyed, small front gardens were made to look ridiculous, and even the cottager in our quiet country villages rooted out his Primroses, Aconites, and Lilies in order that he might, like his neighbours, have a few Mrs. Pollock or yellow Calceolarias. Now this is all altering, and one great ally has come in to help in the change—lawn tennis. Everybody must have this. Like the boys with their tops and hoops, children of a larger growth are so delighted with their new toy that they must have some place to play it in. Hence the lawn has resumed its place, and to some extent the herbaceous border has been introduced. But, as I have said, we are in danger of rushing into extremes. For our large places and for public gardens nothing can be better adapted than the bedding-out system. The Luxembourg at Paris is the only public place where I have seen the mixed border used, and it is the least effective for display of all their public parks; but if kept within due bounds I am sure most people will rejoice at the change, gardeners most of all. I think carpet bedding and lawn tennis have together given the *coup de grâce* to the system.

Horticulture is, if we may judge from the many signs we see, widening its area, and the more it does so the better for our people. I am not quite sure whether amongst our great people there is not a diminution in its interest. We have seen several large collections of Orchids and other plants dispersed during the past year, while the "return for my money" principle seems to be extending. 'I am very sorry I cannot go round the houses

with you, for I am just preparing to send off to market, and this is the second time to-day," was the remark of the gardener of one of our wealthiest noblemen. "I am ashamed to go round the garden with you. You recollect what it was; now I have not half the labour allowed me that I used to have, and in consequence the garden is no pleasure to me. Weeds and untidiness characterise it, but the squire says he cannot afford it," was addressed to myself in visiting one of the most famous gardens in the kingdom for its fruit and vegetable produce; while I think, on the other hand, many more persons of smaller ambition are engaging in it. Let me here quote a letter I have just received from one I have never seen. "The letters of yourself and others in the *Journal of Horticulture* are eagerly watched for and read by us in the north, and I can assure you that to these letters is due in no small degree the increasing demand for Roses in my own particular district. In fact it is no uncommon thing to find cottagers with a hundred plants and longing for more, tending them with every attention that our smoky climate requires. I know men, who beforetime were drunken and bad characters, spend their time in the garden instead of the public house; these men have become decent members of society instead of so many pigs." I, who have an opportunity of being at the Manchester and London shows, am constantly asked my opinion on such and such Roses, and on my saying they are good but costly am met by the reply, "I don't care for the cost if only they are first-rate." This is encouraging, I think, to us, and ought to make us very careful as to what we recommend. Before I leave this branch of my subject I may, I hope, with pardonable egotism, refer to the continued success of the Horticultural Club. More than double the number of members have been elected in 1880 as compared with 1879; and although changes are continually taking place, yet the total number of members continues steady. As we have often been met with the assertion that a year or two would see its exit, it is gratifying to find that after six years of existence it is still flourishing, and affords a pleasant meeting place for many who are interested in horticulture.

I do not think that the past year has been distinguished for any startling novelties, either as introductions from abroad or the results of hybridisation at home. I have before me the list of all those plants and flowers which have been certificated by the Floral Committee, and while many are interesting there is nothing very remarkable to note. Some good Lilies have been shown from Japan and elsewhere; new florists' flowers have not been very numerous, but amongst them have been some valuable additions, but they are but just a little in advance of those we already possess. We have not yet a blue Dahlia or a pure white or deep yellow Hybrid Perpetual Rose. As usual too many characters have been damaged (I mean of flowers, not of men), and things once highly thought of have been consigned to the rubbish heap.

Such is a brief bird's-eye view from my own standpoint of horticulture in 1880. Our season, though not a favourable one, was better than last year. The winter as yet has not set in with severity, and we can only hope that we may look forward with brighter prospects to 1881.—D., Deal.

AN HOUR AT CHELSEA.

HAVING had a rapid "run round" Messrs. Veitch's establishment during Christmas week, the following notes may not be without interest to many of your readers:—In the nursery some improvements have recently been made. The long entrance corridor has been thoroughly renovated, the old Lapagerias having been removed and young plants inserted. Tree Ferns, Palms, Euryas, and various other plants ornamental by their foliage or berries are tastefully arranged, and the corridor has seldom if ever looked better than it does now.

In each of the hundred houses and pits there is something of merit, fresh healthy stocks of old and popular plants, or batches more or less large of others new and rare. Flowers, too, are plentiful. In one house *Azalea narcissiflora* and some others, *Sparmannias*, *Begonia insignis*, *Linum trigynum*, and similarly useful plants for midwinter decoration are in quantity; in another the display of *Erica hyemalis* shows in the most convincing manner how valuable, even indispensable, this *Erica* is for rendering cool structures attractive at this season. The plants are splendidly grown, many of them, though only in small 48-size pots, being more than a foot in diameter with twelve to eighteen principal growths or "horns" densely laden with delicate flowers, the subsidiary growths being equally well flowered quite down to the pots. These plants are masses of chaste beauty, and cannot fail to be admired by all who see them. In the same house some fine clumps of Christmas Roses (*Helleborus niger maximus*) are as effective as *Eucharises*, each plant producing upwards of fifty flowers and

buds. Primulas, Tree Carnations, Cyclamens, Lily of the Valley, each have structures devoted to them; while in the stoves the brilliant colours of the Crotons—the new forms Hawkeri and Cronstadti being very striking—the great display of *Nepenthes*, the dark red pitchers of *N. bicalcarata* being conspicuous, contribute to the varied character of the display.

The extensive collections of Orchids comprise a very large number of species and varieties, and the general condition of the plants is excellent. This is by no means the best time of year for a display of Orchids, yet many were in flower, and a still greater number will soon be in full beauty. The handsome and peculiar *Angraecum sesquipedale* is represented, several extremely fine specimens are bearing eight flowers of unusual size. *Barkeria Lindleyana* is especially noteworthy for its elegant racemes of rich rosy purple flowers, one variety being very distinct both in size and colour of the blooms. The lovely *Laelia anceps* is highly attractive; the colour of the labellum on one specimen is remarkably rich, and indicates a variety of considerable value. Among the *Odontoglossums* it is only necessary to mention the names of such well-known forms as *O. Alexandrae*, *O. Roezlii*, and *O. Andersonianum*, all in fine condition, and to these may be added the charming new *O. blandum*, a pretty dwarf species recently certificated at Kensington, and *O. anceps*, very striking, also accorded a similar honour at the same time. *Calanthes* have produced a grand display, but are now past their best, though sufficient are still left to show what most gardeners now well know—namely, the surprising utility of the plants for decoration in winter. The beautiful hybrid *Dendrobium endocharis*, noted

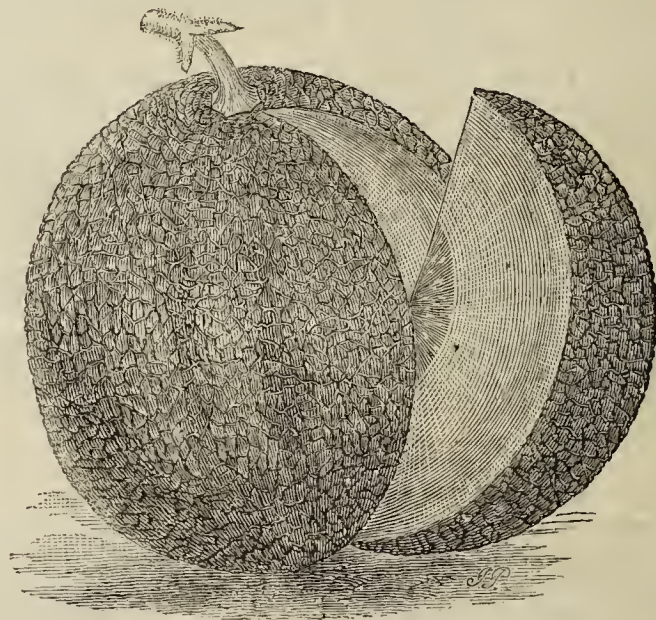


Fig. 105.—High Cross Hybrid.

last week in the *Journal*, is flowering well; a compact specimen with several growths has a large number of its fragrant blooms. The brilliant *Sophronis grandiflora* and its rare but pretty relative *S. violacea* are attractive, while *Saccolabium giganteum*, *S. violaceum*, *Laelia Dayana*, *Oncidium Forbesii*, *O. cheiroporum*, *Lycaste alba*, *Chysis Chelsoni*, *Comparettia falcata*, and many others, are admirable. Among the prospective attractions are the *Phalaenopses*, of which there will be, if the weather proves favourable, an extraordinarily grand display. In one house and on small plants there are about 450 spikes, forming, as my conductor not inaptly termed it, "a network of stems." A very large imported stock of *Cypripedium Lowi* is in superb health, the plants growing most vigorously. Altogether the Orchid houses well repay for a visit, as indeed they do at any period of the year where so many plants are so carefully grown.

The seed department is an important feature of the nursery; and the great structural additions that have been completed render it a matter of surprise, seeing the crowded state of men and goods, how the work of this department could have been previously conducted. The bulbs are nearly all cleared out (it has been an excellent "bulb season"), and it is only by working far into the night as well as by day that the seed orders can be executed with that promptitude that is requisite for the smooth and satisfactory dispatch of business. Those who only advocate the culture of "good old things" would be surprised at the great demand for seed of "novelties" of promise and "specialities" of proved worth. The new Melon High Cross Hybrid, now being distributed by the firm, may be referred to, as it is the only one of the three varieties that were certificated this year that has not been figured in your *Journal*. The reduced engraving, fig. 105, will show the handsome

form, the densely netted character, and the deep flesh of this variety; while if it had not been of superior quality it would not have received the honour that was awarded to it when six fruits were exhibited at the summer Show of the Royal Botanic Society by its raiser, Mr. J. Hopkins, gardener to R. Thornton, Esq., High Cross, Framfield.

The visitor cannot fail to notice the excellent order that prevails in every branch, and the brisk business-like air that pervades the establishment.—A GARDENER.

CULTURE OF LILIUM LANCIFOLIUM (SPECIOSUM).

I CAN well remember, over thirty years ago, *Lilium lancifolium* and the variety *album* being grown in pots 14 and 16 inches in diameter, also ten or twelve bulbs together being planted in a peat border in the conservatory, and I can quite understand the pleasure it gave "N. I. D." to see the fine specimens he mentions at page 523 as growing in the garden of Sir Humphrey de Trafford.

My mode of culture, which I have followed over twenty years with success, is as follows:—When the plants have flowered I have the pots placed upon a south border, so that the bulbs may have the full benefit of the sun to ripen them. When the stems are quite yellow they are cut down, and the pots are laid upon their sides to prevent the bulbs becoming too wet. In November they are taken to the potting shed, where they are shaken out—each variety is kept separate—the pots are then washed and employed again when dry.

The compost I employ for potting consists of one-half of turfy loam about an inch thick broken into pieces the size of an egg, and the other half turfy peat in large pieces, decayed stable manure, leaf soil, pieces of sandstone and charcoal, with a sprinkling of white coarse sand, and a small proportion of soot, all well mixed. Where there are a number of pots required those 12 inches in diameter are most convenient, and 8-inch pots are very useful. Great care must be taken to secure good drainage. If the plants become waterlogged all efforts to obtain a good specimen will be in vain. After the pots are crocked I place pieces of turf over the drainage. I then rather more than half fill the pots with the compost, press it down to prevent it sinking too much, and place the bulbs on the soil near each other. I cover the bulbs with $1\frac{1}{2}$ inch depth of the compost, and a dusting of white sand over the top. The pots are then placed in a vinery where there is ventilation day and night in mild weather, and no fire after the first week in December, where they remain until the first week in April. No water is given them in winter; and as in April the vinery is closed and too warm for them, they are arranged on a south border outside close together, sheltered from the east wind and covered with a mat on frosty nights. When frost is past the Lilies are placed upon a north border, where they remain until the flowers commence opening and are then removed to the conservatory. A top-dressing of loam and decayed dung is applied to the soil. They are secured to stakes, and at every alternate watering they are supplied with liquid manure. They require abundance of water while they are growing, and with good drainage and open compost the water passes away quickly. By the above method I have been able to grow dwarf robust plants with abundance of flowers and dark green healthy leaves.—JOHN NUNNS, *Wimbledon*.

STRAWBERRY FARMING IN SCOTLAND.

It may not be generally known that in certain districts of Scotland the cultivation of the Strawberry has of late years assumed considerable proportions. There is a steady demand for jam made of this delicious fruit, and consequently wholesale confectioners are consuming increasing quantities, some of them to the extent of hundreds of tons annually. There is, besides, a steady and apparently unlimited demand for the fresh fruit for table use, and thus the industry has grown during the last twenty years to an enormous extent. The principal centres of Strawberry farming are Blairgowrie, Aberdeen, and Perth. I am not aware what acreage may be cultivated in the latter two districts, but I have taken some statistics that show that within two miles of where I now write there are upwards of 200 acres under Strawberry cultivation; and as 2 tons per acre is considered a fair average return, it will be seen that the quantity of fruit yearly marketed from this district is very considerable.

The great bulk of the crop is sent off to the confectioners in barrels holding from 1 to 2 cwt. each, and last season fetched from £28 to £30 per ton. Those who, like myself, were at the extra trouble and expense of packing the fruit for table use realised on an average a third more than the above prices.

Most of the growers are men who make a speciality of the crop,

though not a few farmers cultivate a few acres along with their other crops. The Strawberry farms proper are nearly all on land recently reclaimed from the moor. In its natural state this land, covered as it is by Broom and Heather, is not worth 5s. an acre, and even when reclaimed is not worth over 15s. for agricultural purposes; yet the usual rent, in the form of a perpetual feu, is £5 per acre yearly. In addition to this heavy annual burden the feuar must expend say £20 per acre in trenching and laying down a preparatory crop, erect his own house and fences, and make roads. Thus heavily handicapped it may seem surprising that he can live and bring up a family on from four to six acres; yet so kindly is the soil that by the exercise of due industry there are comparatively few who fail.

The soil in its natural state is nothing more than a thin layer of turf, 6 or 8 inches deep, resting on a deep bed of rusty gravel. In trenching a spit of gravel is brought to the surface, thus increasing the cultivated depth to from 12 to 14 inches. Such is the apparently unpromising land to work upon, yet there seems to be something in it that makes it congenial to the Strawberry plant, and in fact insures with less than ordinary trouble and expense a yearly return that contrasts favourably with the best results from rich and highly cultivated districts. In fact the nature of the soil and of the methods here practised are in direct contradiction to generally received theories. I could conceive a stranger who knew nothing but what he might have learned here maintaining that the Strawberry plant required only a poor soil, no bottom moisture, little or no manure, and only a moderate amount of labour. Be that as it may, I do think that the generally received opinions on Strawberry culture require some amount of overhauling. As to the soil, our experience has certainly proved that land quite unfit for ordinary farm rotation can grow Strawberries, in quantity a fair average, and in quality acknowledged superior. As to moisture, no water is found in our gravel at a less depth than 28 to 30 feet, and the rainfall is one of the lowest in Britain, yet even the late exceptionally dry summer gave us a fair average crop. Those who maintain water to be the first, second, and third requisite to successful Strawberry culture may ponder over my facts, explain them as they may. As to manure, the rule here is to prepare the ground for the Turnips. The plants are put in on the drills, and there they are left without further manure till five or six crops have been gathered. I do not say this is either the best plan or a general one, but it is quite common; yet experts direct us to trench in at least 20 tons of manure per acre before planting, and then mulch heavily each succeeding year. And as to labour, while the native weeds and grasses are no doubt troublesome to keep under if not thoroughly eradicated under the preparatory crop, I fancy that our Strawberries require not more than half that usually considered necessary. Such is the nature of our soil that, except during the first and to a small extent the second season, the plants throw out scarcely any runners, and are thus more easily cleaned.

Of course I do not mean to argue that in any poor soil and with little attention to scientific principles good results may be obtained; for even here the intelligent and progressive growers have by far the best of it. In future notes I shall indicate the principles and practice that are found to answer best in the cultivation of Strawberries on a large scale, in the hope that they may be found suitable for other localities as well.—WILLIAM RAITT, *Blairgowrie*.

(To be continued.)

CARNATIONS AT CHRISTMAS.

FEW flowers are more welcome than these at this season of the year. They compare favourably with Roses and Lilies, and for certain purposes are more acceptable than Camellias. Carnations are emphatically flowers for cutting, and attempting to grow them as specimen plants generally results in disappointment. To have large trained plants they must be old, and these never produce flowers so freely and so fine as young plants. The plants must be grown generously throughout their career; there must be no resting to induce free flowering, nor no check at any time. When the plants are large enough they will flower, and the more healthy they are the finer the flowers will be.

They succeed best in a mixture of turfy loam three parts, the other leaf soil and decayed hotbed manure, with sufficient silver sand to render the whole open and porous. A little bone meal is a valuable addition to the soil for Carnations.

The best mode of propagating the Carnation is by cuttings; the small side shoots taken off with a heel will strike freely. These should be dibbled rather thickly in 6-inch pots about three parts filled with soil, over which a good surfacing of silver sand has been placed. After inserting the cuttings give a gentle watering with a fine rose can to settle the surface, and cover with a small

square of glass, and this should be slightly elevated to allow of the condensed water to escape; resting on the labels is sufficient. Place the pots in a temperature of 55° to 60°, and if plunged in a gentle bottom heat the cuttings will strike more readily. This, however, is not absolutely necessary, for they will strike freely in the heat named, only they take a little longer in making robust plants. The best time of the year for striking them is in the early spring months, from the first week in February to the end of April, and securing a succession of plants at different times prolongs the blooming period similarly. As soon as the young plants commence growing remove the glass for a few days and pot them off singly in 60-size pots, returning them to the same house until fresh roots are formed on the plants, after which they succeed best in a cold frame until the nights are warm enough to allow them to be arranged out of doors, which is generally from the middle to the end of May. On all favourable occasions while sheltering the plants in a cold frame draw off the lights to keep the plants as robust and short-jointed as possible.

After the plants have well rooted in their new soil and have grown from 8 to 9 inches in height pinch out the point of the leading shoot; this will cause three or four breaks, which, as they advance in growth, should be secured to neat sticks. This is all the training that is required for ordinary purposes. Some varieties are apt to grow lanky, but nevertheless bloom freely, and they can be trained to a very large size and kept in good health for three or four years. Mr. Blackley of Leyton exhibited a plant of *La Belle* in 1871 trained on a balloon trellis nearly 5 feet in height and several feet in circumference, but as a general rule it has been found that the finest flowers are produced from the younger or one-year-old plants, and the plants mostly bloom in the second year more profusely than the first. After they are about three years of age they are not so satisfactory as younger plants, hence the necessity for annual propagation. The robust varieties may be shifted into 8-inch pots, so that they may not be allowed to suffer by becoming rootbound. When the plants are placed out of doors during the hot summer months a good syringing twice a day will be highly beneficial to them in keeping red spider in check. By no means must they be allowed to suffer at the roots through insufficient supplies of water, or the lower leaves will turn yellow and the health of the plant will be impaired. Fumigate to keep green fly in check. By constant attention to these details a very useful batch of plants may be secured. They should be placed in a cool greenhouse early in October, giving them plenty of air and keeping the atmosphere tolerably dry, and they will flower throughout the winter. The following varieties are all good:—

La Belle (Blackley).—Flowers pure white, perfectly double, and delightfully fragrant; very free bloomer.

Miss Joliffe (Masters).—Pale pink or flesh colour; very fragrant and fine.

Sir Garnet Wolseley.—Buff ground, large flowers, striped, and edged with bright red; a very distinct and useful variety.

Souvenir de Malmaison.—Very large flowers, rosy flesh, and very fragrant, but blooming earlier in the season.

A. Alegatière (Alegatière).—Bright scarlet medium-size flowers; robust habit, dwarf and free flowering.

Celestial (Turner).—Rose edge; very free and distinct.

King of the Belgians (Turner).—Beautiful deep rose colour; fine large flower, but not as free a grower as some.

Guelder Rose (Turner).—Pure white, beautifully fringed; very free.

Rose Perfection (Turner).—Rose; very fine; bright and smooth.

Duke of Wellington, Gloire de Lyon, and Scarlet Defiance are a trio of fine scarlet varieties.

There are numerous other varieties in cultivation, of which mention may be made of Princess Christian, Princess Beatrice, Marchioness of Westminster, Favourite, White Swan, Prosperpine, and Rosy Morn, all raised by Mr. Turner of Slough, and may be added to a large collection if required.—A FLORIST.

SELECT VEGETABLES.

THE time is again at hand when all who grow vegetables will be called upon to select the varieties which they intend cultivating in 1881. To those who only know the names in the seed lists it may appear that any or all might be ordered and grown with equally good results; but such is not the case, as anyone who grows a great variety of vegetables soon ascertains that some which may be highly praised in the seed list are comparatively worthless, while others that are not so highly recommended are excellent. Those with means to grow many vegetables on trial will soon prove this to be correct, but others less favourably situated may spend much money and time and have inferior

crops before a proper selection can be made. To avoid this a trustworthy selection may be acceptable to many, and the following have been selected after repeated trials. Where only one of each kind is wanted the first named should be taken, but the list is as short and select as possible, and for convenience I will proceed in alphabetical order:—*Asparagus*.—Giant. *Artichokes*.—Globe, Green, Jerusalem. *Broad Beans*.—Early Improved Longford, Main Crop, Carter's Leviathan. *Dwarf Kidney Beans*.—Canadian Wonder, Osborn's Forcing, Carter's White Advancer. *Runner Beans*.—Suttons' Giant White. *Beet*.—Dell's Crimson. *Brussels Sprouts*.—Suttons' Matchless, Dalkeith Improved. *Broccoli*.—First, Veitch's Self-protecting Autumn; second, Osborn's Winter White; third, Cooling's Matchless; Fourth, Carter's Summer; fifth, Suttons' Queen. *Cucumber* (house and frame).—Telegraph (ridge), King of the Ridge. *Cauliflower*.—Carter's Extra Early, Veitch's Autumn Giant, Suttons' King of the Cauliflowers. *Cabbage*.—Carter's Early Heartwell Marrow, Main Crop, Dickson's Red Braes, Late Rosette Colewort. *Celery*.—Major Clarke's Red, Sandringham White. *Carrot*.—Early Short Horn, Main Crop, James' Intermediate. *Endive*.—Green Curled. *Leek*.—Musselburgh. *Lettuce*.—Whceler's Tom Thumb, Giant White, All the Year Round. *Onion*.—Improved Reading, Naseby Mammoth, Webb's Banbury, Trebons. *Parsnip*.—The Student. *Parsley*.—Myatt's Garnishing, Carter's Fern-leaved. *Peas*.—William I., Carter's Stratagem, Carter's Telephone, Culverwell's Telegraph, Laxton's Omega, Ne Plus Ultra. *Rhubarb*.—Albert, St. Martin's. *Radish*.—French Breakfast, Scarlet Turnip, Chinese Rose. *Spinach*.—Round and Prickly. *Tomato*.—Carter's Green Gage, Vick's Criterion, The Conqueror. *Turnip*.—Carter's New Jersey Lily, Snowball, White Stone, Chirk Castle. *Vegetable Marrow*.—Custard, Moore's Cream.—J. MUIR, *Margam*.

ZYGOPETALUMS.

ORCHIDS might be appropriately and popularly classified in three sections that would better indicate their respective value to growers than do the more exact botanical system in use. The first and most important section would include all the numerous useful Orchids—namely, those that are easily grown and have handsome flowers borne freely; the second would contain such species as have beautiful but rarely produced flowers, and are difficult of culture; the third I should appropriate to the Orchids remarkable for structural or other peculiarities. Where only a few of the abundant forms in cultivation can be grown the selection is generally made from the useful section, but where the proprietor's means and enthusiasm are greater the others will be also deservedly represented. Fortunately really useful Orchids are now by no means scarce, and a collection of moderate size may be formed containing species and varieties that will maintain a succession of charming flowers through a large portion of the year. During winter flowers of all kinds are particularly acceptable; and in consequence, with Orchids as with other plants, those which flower at that time and possess some attractions are invariably greatly admired—more, perhaps, than they would be at any other period, for when the blooms are abundant the beauty of all except the most showy species is necessarily somewhat paled. Among the useful Orchids that are further recommended by their habit of flowering in the dull season the genus *Zygopetalum* is especially noteworthy, as it includes several species which, though not entitled to rank with the most brilliant of the order, yet possess a distinctive beauty that is scarcely surpassed. They are also marked by their freedom of growth and the durability of the flowers; and though the forms are not equally attractive they are all worth growing, particularly those which bloom about the present time. Such being their recommendation to notice, a few remarks regarding their culture, history, and characteristics may be serviceable to anyone who has not grown them, or only one or two of the best known forms.

Zygopetalum is a genus of terrestrial and epiphytal Orchids inhabiting tropical South America, Brazil being the head quarters, one species only extending the range to Africa. Nearly twenty species and varieties have been enumerated in cultivation, but some are rare and others not very attractive, though a dozen admirable forms can be selected. The genus was founded by Sir William Hooker, who gave the first technical description, the name being derived from two Greek words, and refers to the union of the petals below—one of the distinctive characters. It is included in the tribe Vandeeae. The cultivation, as already indicated, is easy, all of the forms succeeding under culture in pots in an ordinary warm Orchid house. Similar temperature to that afforded Cattleys suits them admirably, with a soil of peat, sphagnum moss, and charcoal broken finely, the drainage being very carefully attended to. During growth they need abundance of water, but when matured

the supply can be considerably reduced, though sufficient must always be given to preserve the handsome evergreen plaited leaves in good condition. Several of the species, notably *Z. Mackaili* and *Z. maxillare*, do not require a house specially devoted to Orchids, as they thrive in a plant stove or even in a vinery, the former plant being the better adapted of the two for such houses. The following brief descriptions will indicate the principal characters of the most beautiful species:—

Z. Mackaili.—Probably the most useful of the genus, and not inferior to any in attractiveness. For flowering at this time of year and in the winter months generally it cannot be surpassed,



Fig. 106.—*Zygopetalum Mackaili*.

the long spikes of fragrant flowers being very freely produced, and continuing in good condition for a long period. The accompanying engraving (fig. 106) well represents a single flower of the usual size, which was taken from a plant last week. The ground colour of the sepals and petals is a greenish tint, which is blotched and barred with a rich shade of chocolate; but the lip is the most striking portion of the flower, being beautifully streaked and marbled with bright bluish purple on a white ground—a most dis-



Fig. 107.—*Zygopetalum maxillare*.

tinct and effective contrast. The species is also interesting as the one that was first known, and upon which the genus was founded. It is a native of Brazil, whence it was obtained by Mr. Mackay of the Dublin College Botanic Garden, who forwarded a flowering specimen to Sir W. Hooker in 1827, from which the generic diagnosis and an admirable coloured plate were prepared for the "Botanical Magazine."

Z. maxillare.—Another very handsome species, which flowers at different times of the year, but generally during autumn. The flowers are borne on spikes, but not so long or erect as in *Z. Mackaili*, but they are equally as durable as those of that species. The sepals and petals are of a greenish hue with chocolate markings, especially near the base; the lip, however, is again the most striking portion of the flower, though it is very different in form from that previously described. It is a rich blue in colour, and is at the base peculiarly raised and ridged, so as to bear some resemblance to the lower jaw of an animal, and to this circumstance it owes its specific name. Fig. 107 shows the character fairly. The plant is a native of the Organ Mountains, Brazil, where it is said to grow solely on the stems of Tree Ferns, but it does not require epiphytal treatment in this country. It has been in cultivation about fifty years.

Z. Sederi.—Following the two best-known species I may give some description of this beautiful hybrid. It originated a few



Fig. 108.—*Zygopetalum brachypetalum*.

years ago at Messrs. Veitch's nursery, Chelsea, and was the result of a cross between *Z. Mackaili* and *Z. maxillare*, forming, I believe, the first hybrid obtained in the genus. It possesses some characters of each parent, being as free in growth and flowering, but



Fig. 109.—*Zygopetalum cochleare*.

rather dwarfer in habit. The flowers are large; the lip being particularly broad, and of a rich purple colour most beautifully mottled with a lighter tint.

Z. Clayi.—This I have not seen, but it has been described as a hybrid of similar parentage to the one last named, and is said to have been raised by Lieut.-Col. Clay of Birkenhead. An experienced Orchid-grower, however, informs me that it is only a variety of *Z. maxillare*. It appears to be of stronger growth than that species, and has spikes bearing about half a dozen flowers each, with brown-marked sepals and petals and rich purple lips.

Z. brachypetalum.—A species well worth more attention than

it has hitherto received, for it has the most pleasing characters of the genus strongly marked. The form of the flower is shown in fig. 108, the sepals and petals being a brownish tint marbled with green, and a violet-blue lip veined with white, and a purple-streaked column. It is also a Brazilian species, and has now been known nearly forty years. It usually flowers in the autumn or early winter.

Z. Wendlandi.—A handsome species of comparatively recent introduction from Costa Rica, and one which I understand we owe to Messrs. J. Veitch & Sons. It is similar in habit to those already described, the flowers being of good size, the sepals and petals olive green, the lip large, purple, with a white crisped margin. They also possess an agreeable fragrance.

Z. rostratum.—One of the oldest forms in English gardens, as it was introduced a few years after *Z. Mackaii*. It is entitled to rank among the most showy and useful of the genus, as it flowers at two or three different periods, the blooms lasting in some instances for five weeks. A slightly higher temperature than that suited to the other species with proportionate moisture is beneficial to *Z. rostratum*, and it will then amply repay the cultivator. The sepals and petals are yellowish green, but the lip is very distinct, the ground colour being white streaked with rosy pink.

Z. cochleare.—This is easily recognised by the flowers being produced singly and not in spikes or racemes, the prevailing character. The flowers are also individually distinct from other forms in the genus both in shape and colour. The bloom shown in fig. 109 clearly portrays the peculiarity of form, the sepals and petals being white, of wax-like texture and gloss, and the large lip veined with rich bluish purple. The fragrance is powerful and pleasing, and, though the plant is not so effective as some of its congeners, it well deserves attention. The usual flowering period is autumn, and the plant was obtained from Trinidad many years ago, but it is now rarely seen.

The other species included in this genus it is unnecessary to describe in detail. Those already mentioned suffice for ordinary collections, and where more can be grown *Z. africanum*, *Z. aromaticum*, *Z. gramineum*, and *Z. Gautieri* may be added. They are all more or less attractive. Some distinct varieties of *Z. Mackaii* and *Z. maxillare* are also known, but they do not demand special attention in these notes, as the remarks under each of these species sufficiently indicate their chief characteristics.

—L. CASTLE.



CHRISTMAS ROSES are deservedly general favourites, and, early as they flower naturally, with a little assistance they may be had in fine condition from the middle of December. One of the best varieties for this purpose is *HELLEBORUS NIGER MAXIMUS*, for the flowers are of great size, excellent form, and of a very clear white. The specimens from Chiswick at the last meeting of the Royal Horticultural Society well indicated the beauty and value of the plants when in good condition. These specimens were in baskets, and had been taken from the ground about a month previously, and when placed under glass soon commenced expanding their flower buds. A rich soil and frequent supplies of liquid manure had also assisted them greatly.

— WE learn that the TESTIMONIAL TO MR. PETER GRIEVE which was recently projected has taken the form of a gold hunting lever watch, a timepiece, and a pair of candelabra, with a silver cake basket for Mrs. Grieve, which were presented at a dinner in Bury St. Edmunds last week. In addition to the above Mr. and Mrs. Grieve have received a testimonial from forty-seven householders in the village of Culford, and also one from the under gardeners at Culford Hall.

— MR. WILLIAM PAUL'S ROSE ANNUAL for 1880-81, has been received by us, and a beautiful issue it is. The number contains coloured plates, admirably executed, of four Roses. Lady Sheffield, raised by Mr. R. B. Postans, is a grand symmetrical flower, with stout smooth petals of a pale crimson hue—

such a bloom as exhibitors would covet for making up a high-class stand. Princess Marie Dolgorouky (Gonod) is a vigorous Hybrid Perpetual, showing great substance of petal, colour rosy crimson. Madame Oswald de Kerchove (Schwartz) is charmingly represented, and as a Hybrid Perpetual is most distinct, the prevailing colour being white, but the centre of the bloom coppery yellow. If this variety will flower under ordinary culture as fully as shown in the figure it will prove a valuable addition, and indispensable for garden decoration. The remaining figure displays a grand bloom of Red Gauntlet (Postans), glowing scarlet crimson, with petals of velvety texture and fine foliage. It is as a bedding Rose that Mr. Paul thinks this Rose will be most valued, on account of its free growth and floriferous character; but it will be seen at exhibitions also. The number contains several excellent articles that all Rose lovers should read, and it concludes, as stated in the preface, the second series of the work; the two series now published containing thirty-two coloured plates of superior Roses, and constitute a work that certainly combines "beauty with utility."

— A GRACEFUL and distinct new Fern has been for some time in the possession of Messrs. J. Veitch & Sons, Chelsea, and probably the general public may have an opportunity of seeing it at some of the metropolitan exhibitions in the coming year. It is named *GYMNOGRAMMA SCHIZOPHYLLA*, and has elegant tripinnate fronds with linear dark green divisions, and the fronds are also remarkable for their viviparous habit, resembling in this respect some of the *Aspleniums*. It appears to be well adapted for suspending from the roof of a warm fernery, either growing in pots or baskets, as the fronds which are said to attain the length of 2 feet then arch gracefully. It is a native of Jamaica, whence it was obtained chiefly by the efforts of the late Mr. Arthur Veitch.

— THE demand for GOOD GRAPES appears to be considerable in the north of England, as we learn from a Durham paper that our correspondent Mr. Witherspoon has sold his crop of 1600 bunches, and intends erecting more structures for providing a larger supply. Grape culture appears to be more lucrative than Pear-growing, as we observe the projected alterations necessitate the disposal of several fine Pear trees five and six years old, of the most approved varieties. We have rarely seen finer Grapes than those grown in the "Red Rose Vineries" at Chester-le-Street, and we are not surprised at their ready sale.

— AT the central offices of the General Horticultural Company, Warwick House, Regent Street, we noticed last week three ITALIAN BOUQUETS of great size and tastefully arranged. Mr. J. Wills informs us that they were obtained from Turin, and though they were seven days on the passage the freshness of the flowers was surprising. They were each about 2 feet 6 inches in diameter, and were composed of pure white and crimson striped Camellias, Neapolitan Violets, *Hebeclinium ianthinum*, and the berries of a *Cratægus* arranged in a somewhat geometrical manner in circles, diamonds, and angles. The contrast of the lavender blue *Hebeclinium* with the white Camellias was especially pleasing.

— "G. O. S." writes, "It is somewhat remarkable that whilst there are so very few berries on the Hollies, Arbutus, Yews, and Ivy, the SAVIN bushes, which grow abundantly in this part of the country near Grange-over-Sands, are densely crowded with berries, as you may see by the enclosed. *Cotoneaster microphylla* has also a fair crop of berries." The specimen sent bore a great number of berries—more, indeed, than we remember having seen on so small a spray.

— ONE of the prettiest Pompon Chrysanthemums we have seen this season is a new variety named LILAC GEM, flowers of

which have been sent to us by Mr. Cannell. The flowers are very small and admirably formed, with chaste reflexed florets forming two-thirds of a ball. The colour is very pleasing, and the variety will be valuable for bouquets and general decorative purposes. As evidence of the usefulness of Chrysanthemums for vase decoration we may observe that the flowers above referred to are still fresh, though they have been severed from the plant upwards of three weeks.

— LIKE the issues of previous years, Mr. Shirley Hibberd's old-established annual, the "GARDEN ORACLE" for 1881, contains a great variety of matter, seasonable and useful. It includes articles on special subjects, new inventions, well-selected lists of fruit, flowers, and vegetables, and a concise calendar of gardening operations for the different months of the year.

— "W. I." sends the following note on PRIMULAS AT READING:—"Several of the houses in Messrs. Suttons' nurseries are at the present time filled with some handsome Chinese Primulas. The idea of maintaining a lengthened display of Primulas with the help of early, midseason, and late varieties is rather novel, but, as demonstrated at Reading, is perfectly practicable, as Messrs. Suttons have succeeded in perfecting strains which, if sown simultaneously and grown under precisely the same conditions, will flower at very different periods. Added to this the plants are sturdy in growth and produce strong whorls of large well-shaped blooms of various, and in some instances very novel, colours. Great improvements have also been effected in the Fern-leaved Primulas, which will probably bring them into favour again. The old strains were considered faulty owing to the extreme length of the leafstalks, but the new strains are sturdy and compact. The only variety yet named is Rosy Queen, and this is the earliest to bloom. A house now full of plants is very effective. The flowers are large, of good form and substance, the colour being a very pleasing rosy pink. A house is also filled with Ruby King Primula, which will shortly be at its best, as hundreds of plants are fast expanding their richly coloured blooms. This is a very sturdy distinct variety, but requires a little heat to develop the flowers satisfactorily. Two other novelties to be distributed this season are Reading Pink and Pearl, which are varieties of great merit."

— PART V. of PAXTON'S FLOWER GARDEN contains coloured plates of *Nepenthes sanguinea* and *Clianthus Dampieri*, the former rather startling in the colour, and the latter well indicating the form of the flowers, but much inferior in colour and size to the specimens exhibited by Mr. A. Harding at one of the Royal Horticultural Society's meetings last year. The cultural instructions are clear, the "Gleanings" being also continued.

— WRITING upon the DISTRIBUTION OF PLANTS in Messrs. Cassell's "Science for All," Dr. Robert Brown has the following remarks concerning the rapid increase of some plants when introduced into other countries. After referring to the spread of the well-known American Waterweed in this country since 1847, he continues: "The common Sorrel (*Rumex acetosella*) has been introduced with grain into nearly every one of our colonies, and in New Zealand it is spreading with such activity that it would take possession of the fields did not the farmer find that in the struggle for existence it cannot bear up against the greater vigour of the white Clover, which soon kills it. Even the white Clover in one locality has its match in the Cat's-ear (*Hypochaeris radicata*), which in three years from its introduction into New Zealand has destroyed excellent pastures. The introduction of the *Anacharis* into Great Britain is paralleled by the introduction of the *Vallisneria* into the Hudson River, where in the months of August and September it almost stops navigation in places; or by the Watercress, which threatens to choke up the New Zealand rivers in the district of Canterbury. A Grass (*Stipa tenuifolia*) has invaded the

southern Russian steppes, and is rapidly displacing almost every other plant; while the Cardoon (*Cynara cardunculus*), accidentally introduced from Europe, now clothes almost to the exclusion of other plants whole leagues of the Pampas of the Argentine Republic and Uruguay."

— AT the last meeting of the ROYAL HORTICULTURAL SOCIETY OF IRELAND—Edward Perceval Westby, Esq., D.L., in the chair—among other communications letters were read from Messrs. Moore and Burbidge, Directors of the Glasnevin and University Botanic Gardens, expressing their acknowledgments for their election as honorary members of the Society; and also one from Mr. Roberts, head gardener to the Countess of Charleville, Charleville Forest, Tullamore, King's County, thanking the Council for the special award of the Society's large silver medal for the extraordinary, indeed marvellous, bunch of black Grapes (*Gros Guillaume*) exhibited by him at the Society's Winter Show of fruits, held last month in the Exhibition Palace, and further giving a few interesting facts with regard to the Vine that produced it, which appear worthy of being put on record. After giving, as requested, the exact weight of the bunch in question (26 lbs. 6 ozs.), Mr. Roberts proceeds to say—"Last year two bunches cut from the same Vine and exhibited in London weighed over 3 stone, or 42 lbs., and for these I was awarded a medal by the Royal Horticultural Society, South Kensington. I may, too, mention the fact, merely with a view to show what the Vine that bore those and the bunch exhibited on the 25th ult. has done—in five seasons it has borne nine bunches, the total weight of which was 165 lbs."—(*Irish Farmers' Gazette*.)

— THE OLIVE HARVEST.—The Naples correspondent of the *Daily News* writes:—"According to the last reports the Olives in the provinces of Puglia and Calabria are of unusually good quality. The temperature could not have been better than it was during the last six weeks—a period essential for the definitive ripening of the fruit, which in consequence is so firmly attached to the branches that none falls, and it can be plucked at leisure. In Calabria especially not an Olive has fallen, a thing that has not been noticed for many years, and if the weather continues so mild and without frost there is a certainty that the fruit will yield oil of exceptional quality and quantity. The markets at Gora and Galipoli are calm, with little business doing, and if no further reduction in price is verified it is only because the actual price of oil is already low enough for an abundant harvest, from which foreign countries have still to lay in their large stores. Reports from Spain, the Ionian Islands, Greece, and Tunis are also excellent; the last place will yield a harvest three times more than the average quality."

FRAGRANT ROSES.

MR. MUIR's commendation of *Niphotos* as the best Tea Rose may be true of its indoor culture or of its condition at Margam, one of the most genial situations in the kingdom, within a few feet of sea level, and sheltered alike from north, east, and west winds. But change the situation. Take a site like this more than 800 feet above the sea and exposed, except so far as some plantations shield us from the west and north winds. What would then be the reputation of *Niphotos*? I wish much that more attention were given to hardy Roses suited to open grounds, and which should also maintain the Rose's chief charm—fragrance. There is, I am glad to say, an increasing disposition to discard delicate and scentless varieties. It will add greatly to the value of the proposed catalogue by the Rose Society, if in the description it be stated whether the variety is or is not fragrant. If this is to be one of the qualities particularised I shall be glad not only to take some copies but to subscribe towards the expenses of publication.

We greatly want a work of the kind. One other point interests me—I wish that the absurd nomenclature could be revised. The Rose requires no dignities; she is queen of the garden, and to dub her with a string of minor appellatives is ludicrous. I have in my garden nearly a thousand varieties; they appear in my private

catalogue shorn of titular dignity, and where feasible I have banished courtesy prefixes. My Roses grow and bloom none the worse for this excision, and I am saved much useless labour and weariness. In truth the Rose seems all the better for a simple name. I have of course been compelled to maintain some of the tinsel decorations. Duchess of Edinburgh could not well be abbreviated, but Wellington sounds better than the Duke of Wellington, William Paul than Mr. William Paul. Who would say Mr. William Pitt, or add an empty honour to the name of Caesar? Madame Rothschild reaches the extreme of my respect; but I have Camille de Rohan, Marie Henriette, Marie Cirodde, Malmaison, and The Gloire.

One word more about fragrant Roses. Why do not our nurserymen distinguish in their catalogues those that are sweet? There could in any event be no difficulty in saying whether new Roses are scented when their introduction is heralded. It is a misfortune that a scentless Rose was ever allowed to live. We should in the garden have a Spartan code. Imperfect as well as worthless things should be sacrificed; every Rose bantling without perfume should have been cast away. The evil of propagating false flowers like Madame Rothschild cannot be remedied by an individual. But these spurious things are put under ban by the fair sex, and we shall in time remove the pretenders, and secure others of their form and colour and with any other good quality, while preserving the Rose's wondrous sweetness.

Is it impracticable to publish in the Journal in sections a full list of all scented Roses? If you can give the space it would be a labour of love to many to supply the material.—W. SIMONS, *Gwainvarren, Merthyr Tydfil*.

EXTRAORDINARY TITHES ON FRUIT AND MARKET GARDENS.

As a great many readers of your valuable paper have to pay the above obnoxious impost upon fruit and market garden grounds, I think a few remarks upon the subject will interest them and be useful to all of your subscribers. Lord John Russell, speaking of this tithe, said, "It was a tax upon agriculture, and one which would prevent people from making those experiments in agriculture which would be to the advantage of this country." Everyone must admit that it is a discouragement of the above industries and a direct tax upon labour and capital, and this extra tithe distinctly acts as a bounty upon those foreign importations—viz., fruit, vegetables, and Hops. I will mention a few parishes where this extraordinary tithe is charged upon fruit and market garden grounds, to show the inequalities that exist, as well as being a prohibitory tax in some parishes. In Isleworth, Middlesex, the charge is 7s. per acre; at Limpsfield and Oxted in Surrey, 16s. 9d.; Eynsford, Kent, 7s.; next parish of Shoreham none, at same time a great deal of fruit grown in both parishes; Farnborough, Kent, 7s.; Sutton-at-Hone, 9s.; adjoining parish of Horton Kirby, Kent, none; Plumstead, 6s.; Erith, 10s.; Bexley, none; Hoo, near Rochester, 12s.; Cooling, a few parishes off, 4s.; Leeds, near Maidstone, 18s.; Canterbury, none; Orpington, 8s.; Westerham, 18s.; Chart Sutton, 8s. 6d.; Sutton Valence, 18s.; Cranbrook, none; and St. Mary Cray, 8s. These parishes are all in Kent. In Sussex—Lancing, 6s. per acre; Henfield, 4s. 6d.; Edburton, 4s.; Thakenham, 3s. 6d.; and Offenham in Worcestershire, 4s. It must be remembered that this tithe is in addition to the ordinary tithe, which is generally about 7s. or 8s. per acre, a few parishes as high as 15s. per acre; and the corn averages, which are taken so unfairly and are now agitating the mind of every occupier of land, is charged upon these tithes. Thus last year, one of the most disastrous upon record to the producer of food, we were compelled to pay £111 15s. 1½d. for every £100 worth of extraordinary tithe, or 11½ per cent. above par. As Dean Swift tells us that the man who makes two blades of grass spring up where there was only one before is a benefactor of his species, so is a statesman who is a means of getting an Act of Parliament passed for the redemption of a tithe that prevents the tiller of the soil to a great extent in producing the fruits of the earth.—ALBERT BATH, *Colgates Farm, Sevenoaks, Kent*.

[Our correspondent is the author of a prize essay on "Tithes, Ordinary and Extraordinary, and How to Deal with Them," that has lately appeared in the *Mark Lane Express*. The theme is ably handled, and forms a practical and lucid treatise upon a complicated and difficult subject, and deserves a careful perusal. In dealing with extraordinary tithes he recommends "A short Act of Parliament, to be called the 'Extraordinary Tithes Compulsory Redemption Act,' should be passed, declaring that at a certain period all extraordinary tithes shall be redeemed, landowners in a reasonable time to pay the receivers of these tithes (who are with few exceptions clergymen of the Church of England) life and vested interest, it to be compulsory upon receivers of tithes to sell, Government to grant loans to the landowners where required upon

easy terms for the purpose of redeeming the said tithes. After the passing of this Act any agreement or lease binding the tenant to pay the landowner an extra sum per year in 'consideration' of being relieved of these tithes will be useless, and of no effect in courts of justice." The subject is undoubtedly one of great importance, and demands the consideration of all who are identified with the culture of fruit and other market garden crops.]

THE SCHOOLMASTER APPLE.

THE following figure of this handsome new variety is extracted from the "Gardener's Year Book" for 1881:—

"Fruit conical, obtusely ribbed on the side, terminating at the eye in broad ridges, and knobbed at the base. Skin bright green, changing to greenish yellow as it ripens, covered all over with large russetty freckles, and with a pale thin red tinge where it is exposed to the sun; russetty round the stalk. Eye closed, with long pointed

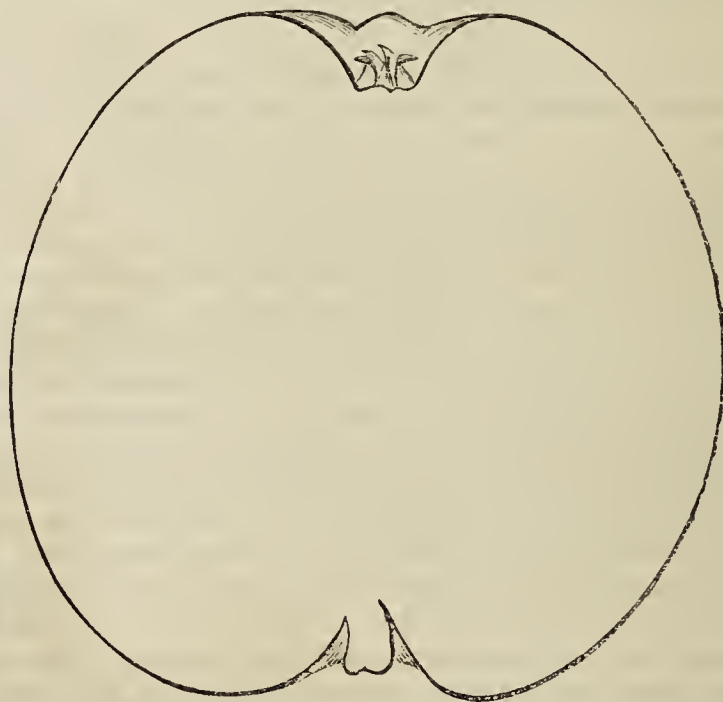


Fig. 110.—Schoolmaster.

segments, the tips of which are reflexed, set in a pretty deep basin; tube long, funnel-shaped; stamens marginal. Stalk very short, slender, or a mere knob, deeply inserted in a close cavity, with a large swollen protuberance on one side. Flesh white, crisp, tender, and mildly acid with some sweetness. Cells of the core open.

"A very excellent culinary Apple, which received a first-class certificate from the Royal Horticultural Society, November 16th, 1880. It was introduced by Mr. Thomas Laxton of Bedford, who reported to the Society that it was raised from seed of an Apple imported from America."

PEACH BLISTER AND POTATO DISEASE.

I DO not think there is so much difference of opinion between Mr. Luckhurst and myself about the question of Peach blister. I have no doubt that cold winds and severe changes of temperature predispose the trees to the disease; but, as in the case of the Potato disease, I still think the disease itself is caused by the growth of a fungus—in other words that fungus is the cause, not merely the result of the disease, both in the case of the Peach blister and of the Potato disease. I quite agree with Mr. Luckhurst that properly arranged glass walls will prevent the disease, and that with judicious management much may be done merely by a glass coping and shelter by means of Nottingham net, frigidome, or other materials to check the spread of it, even where there is no artificial heat used. Though well-ripened wood is less subject to the attack of the fungus, yet, under unfavourable conditions in the early growth of foliage in the spring, the disease will attack even the healthiest growths from wood of the previous year; but at the same time Peach trees that have the advantage of growing under glass, whether in heated or unheated structures, are less likely to suffer from the disease, both from their growth being better matured, and also because proper ventilation can be given without cold draughts and excessive changes of temperature which unprotected trees are liable to suffer from, and which both induces the disease in the first instance and promotes the spread of the blister afterwards.

With regard, too, to the Potato disease, I quite agree with Mr. Luckhurst that in favourable situations and in good soil, where the earlier varieties of Potatoes can be grown, that the spread of the Potato disease may be much arrested, and even in some cases prevented, by early raising the crop and securing it in dry sheds under cover, where it can be sorted over from time to time; but I cannot accept it as either a cure or a remedy for the later varieties when once the haulms are attacked, though it may often be a good plan to pull the haulms up and cover the ridges with fresh soil and to allow the ground to become drier before lifting, for if once the haulm is attacked it generally spreads through the whole of the crop, and no healthy growth can take place afterwards. I have

no doubt, too, from my own experience that careful storing and selection of sets, proper preparation of the soil, all manure being forked in, and the ground made ready the previous autumn or in early spring, and sufficient space being given between both the rows and the sets for proper air and sun, will help to ward off the attack of the Potato fungus, unless the weather be very favourable to its growth at the latter end of July or the beginning of August, when too often in such seasons as that 1879 all previous care and attention has proved unavailing. There is an adage, "A man convinced against his will remains of the same opinion still;" and I am afraid I must still say after all that has been advanced, that I still think the fungus cannot be said to be the result only of a

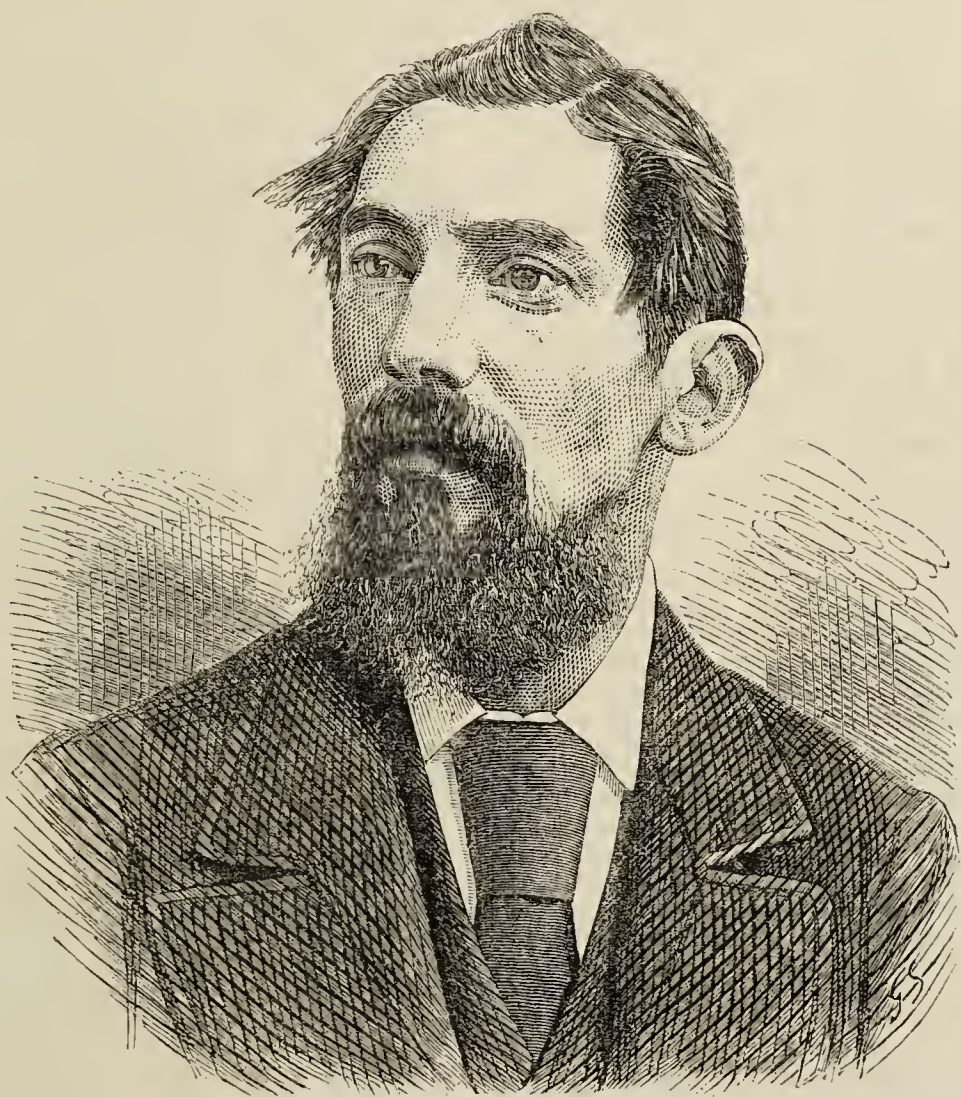


Fig. 111.—MR. ARTHUR VEITCH.

previously diseased condition, but that the growth of the *Peronospora infestans* is the actual means whereby the Potatoes are injured and become by degrees unfit for use.—C. P. P.

[We think the subject has been sufficiently discussed at present.—EDS.]

THE LATE MR. ARTHUR VEITCH.

SINCE we announced the sudden death of this gentleman, which occurred on September 25th last, we have received so many letters alluding to the sad occurrence, and so many expressions of respect for his memory, that we are sure his portrait will be welcomed not only by the great number who had the pleasure of

his acquaintance, but by thousands of others with whom his name and good works have become familiar. We quote from one of the letters referred to because it was the last we have received, and as a spontaneous expression of feeling of an old correspondent, who was quite unaware of the preparation of the portrait. After referring to the losses of the year and paying a warm tribute of esteem to the late Mr. Radclyffe, Mr. A. B. Stewart, and others, "D., Deal," wrote as follows:—"Few deaths have occasioned a wider feeling of regret than that of young Arthur Veitch—a proof of how true Christian life does commend itself even to those who cannot understand it. Modest and retiring, yet how highly he was esteemed! and devoting as he did so much time and thought to the sufferers around him, it was a

gratifying though sad testimony to his worth that thousands of the poor of the district in which he lived saw him laid in his grave, and that, as it was described to me, it was as a wall of tears; and this, let it be remembered, not so much a proof of gratitude for temporal aid as for spiritual teaching and ready sympathy in sorrow." We have nothing to add to those words, but may remark as evidence of the great respect in which Mr. Arthur Veitch was held by those with whom he associated in daily life, that the *employés* of the firm have in course of completion a handsome marble memorial for the grave of their lamented friend, with a suitable inscription including the singularly appropriate words—

"To live in hearts we leave behind, is not to die."

PORTRAITS OF NEW AND NOTABLE PLANTS.

ARCTOTIS ASPERA, VAR. ARBORESCENS.—"The genus *Arctotis* is little known to horticulturists, although one species, the present, of the thirty described, has long been known in botanic gardens, and no less than thirteen are figured in Jacquin's "*Hortus Schoenbrunensis*," from specimens that flowered in the Imperial Botanic Garden of Vienna during the last century. Sixteen (exclusive of one referred to *Venidium*) are enumerated in the "*Hortus Kewensis*" as being in cultivation in 1813, and there are five others enumerated as species in that work which are now regarded as varieties. The present is one of the most beautiful of the genus; it was cultivated in England before 1710, and in Holland much earlier.—(*Bot. Mag.*, t. 6528.)

DISA MEGACERAS.—"It is not without great consideration that I have been compelled to give a new name to the little-known *Disa macrantha* of the gardens, nor would I have done so were I not well assured that the true *D. macrantha* is a very different plant, coming indeed from a very different part of the South African continent from that inhabited by the present species. It is true that of *D. macrantha* very little is certainly known; it is a species of Thunberg's, described in his "*Flora Capensis*" (page 33) as having the spur conical, shorter than the hood; the petals small, hidden under the hood, rounded at the base, falcately recurved in the middle, angled posteriorly, dilated retuse and crenulate at the end, the lip oblong acute, keeled, sub-erect, and the anther, &c., as in *D. cornuta*, than which the flowers are rather larger. Now if the figure of the plant here given is compared with this description and with the plate of *D. cornuta* in this work (t. 4091), it will be seen that in all those points in which *D. macrantha* differs from *D. megaceras* it agrees with *D. cornuta*, notably in the short spur, in the small petals falcately recurved, dilated at the apex, and hidden under the hood; in the oblong lip and very small broad anther; to which must be added that *D. macrantha* is a western plant of the Cape district itself, whereas *D. megaceras* is an eastern one."—(*Ibid.*, t. 6529.)

ERIGERON MULTIRADIATUS.—"One of the most beautiful of the alpine Himalayan Composite, but very variable and difficult to distinguish from forms of neighbouring species, especially of *E. alpinus*, to which small states of it approach very closely. *E. multiradiatus* is, however, in its normal state a much larger and handsomer plant, with the heads usually at least 2 inches in diameter, and of a bright purple colour. In rich moist soil old plants grow 2 feet high and branch very considerably, and the radical leaves disappear early, giving the plant a very different appearance from that of its younger state, in which the habit is scapigerous and the radical leaves copious. It is a native of grassy wet pastures along the whole length of the Himalayan range, from Kashmir, where it inhabits elevations of 7000 to 9000 feet, to Sikkim, where it ascends to 12,000 feet."—(*Ibid.*, t. 6530.)

WORMIA BURBIDGEI.—"The genus *Wormia*, a near ally of the familiar *Hibbertias* of our greenhouses, consists of about ten species of shrubs or trees with usually very handsome flowers and foliage, which extend from tropical Australia through the Malay Islands and Southern India to the Seychelles. Though known in Indian botanic gardens, the present is the only one that to our knowledge has ever flowered in Europe. It is closely allied to *W. subsessilis* of Miquel. *W. Burbidgei* is a native of northern Borneo, where it was discovered by the intelligent and successful collector whose name it bears when exploring the Bornean forests for Messrs. Veitch."—(*Ibid.*, t. 6531.)

DISA POLYGONOIDES.—"A very different-looking plant from the *Disa megaceras*, though agreeing in all generic characters most closely, and when more fully developed a very striking plant, the spike of orange flowers sometimes attaining a foot in length. *D. polygonoides* inhabits marshy valleys, and has a very wide range, from Grahamstown eastward to Natal; and from the number of collectors who have sent it, it would appear to be a very common Orchid. The tubers of the specimen figured were

presented to Kew by W. B. Lyle, Esq., of Kirkley Vale Estate, Natal, and flowered in September of the present year in the temperate Orchid house."—(*Ibid.*, t. 6532.)

SCUTELLARIA MOCCINIANA.

THIS is a very useful plant for the stove, and it succeeds in an intermediate house. It is easy of cultivation, and when well grown makes a fine display. It is suitable for room or table decoration, but when grown for this purpose four or five cuttings should be inserted together. The reason several are recommended to be grown together is because it is rather difficult to produce good bushy plants retaining their lower leaves suitable for these purposes. To grow this plant well, no stopping or pinching should be attempted after the cuttings are inserted; they should be grown on until they produce their terminal racemes of bright orange scarlet flowers, the throat being of a deep yellow. Under the pinching and stopping system I have hitherto failed to grow this plant well to be of much service for winter decoration. If propagated in spring, and the plants are pinched from time to time to form bushy specimens, it is seldom they produce good flowers. Cuttings should constantly be rooted and grown on strongly until they produce heads of flowers; by this means they can be had in succession through the greater part of the year. It is a free-flowering plant and adapted for blooming at any time. The time of propagation for autumn and winter entirely depends upon conditions and facilities for growing the plants. The system most practicable is to propagate a few every month, and the plants should never be stopped, but allowed to bloom. It is difficult to produce a good specimen, as its lower leaves are very apt to fall. It not unfrequently happens, when stopping is resorted to, that strong shoots spring from the base of the plant, 6 or 9 inches of the lower part of the shoot scarcely having a leaf; but such shoots if allowed to go unstopped produce excellent flowers.

Cuttings root readily in heat in sandy loam without a bell-glass or propagating frame if shaded from strong sun until rooted. Leaf soil added to good loam in equal parts, and plenty of coarse sand, will form a suitable compost, in which the young plants will do well. Liberal applications of water should be given while growing, with occasional supplies of liquid manure when the pots are full of roots. This plant is very subject to mealy bug and a small black fly, and if not well syringed red spider will establish itself on the under side of the leaf.—WM. BARDNEY.

A NEW MODE OF HEATING BUILDINGS.

MESSRS. J. WEEKS & Co., the eminent firm of hot-water engineers, have devised a mode of warming churches, schools, mansions, public buildings, and private dwellings, which appears to possess features of considerable value. It is compact and admirable in arrangement, as will be seen by the accompanying figures, which Messrs. Weeks enable us to submit, and it provides for the admission of warm instead of cold air into buildings; thus fresh air is being constantly admitted in the most agreeable manner—a matter of great importance. The system cannot be so well described and explained as by an extract from the circular that is issued by the manufacturers of the apparatus.

"The boiler is tubular, the apparatus economical in its cost and in its consumption of fuel; it is powerful, rapid in its action, and requires very little attention. The connections are so arranged that any number of rooms from two or three up to fifty or more can be warmed, and the whole or any number worked together or separately as required.

"Fig. 1 shows a section through the outer wall of a church, at a window. It will be seen that the wall below the window sill is built hollow, and that the recess thus formed is filled with hot-water pipes. The opening at the top may or may not be covered by an iron grating C. A is an opening into the church and closed at pleasure by a wooden flap. B is an iron ventilator just above the level of opening A, also closed at pleasure by a flap. This arrangement serves as a warming apparatus and ventilating apparatus combined—thus: In the summer, when the warming apparatus is not in use, the flap A is closed and the ventilator B remains open. The result is that cool fresh air enters at B, passes up the cavity through the grating C into the church above the heads of the congregation. In addition to this, the current of air would naturally follow the direction acquired in passing through the cavity for some height in the church, as shown by the arrows, and then disperse into an immense number of small currents and descend imperceptibly, thus avoiding the draughts so common and distressing in buildings devoted to public worship.

"In the winter when the warming apparatus is in use, the flap A being still closed and the ventilator B open, the result would be

the same, except that the fresh air would be thoroughly warmed by contact with the hot-water pipes before entering the church; thus entirely obviating the necessity which exists under most plans of warming for admitting cold air into the building for the sake of ventilation. In very severe weather, or while the heat is being got up before the arrival of the congregation, the ventilator B may be closed and the flap A opened. The result then is that the air in the church passes into the cavity at A through the coil, out into the church at grating C, and, this process being continued,

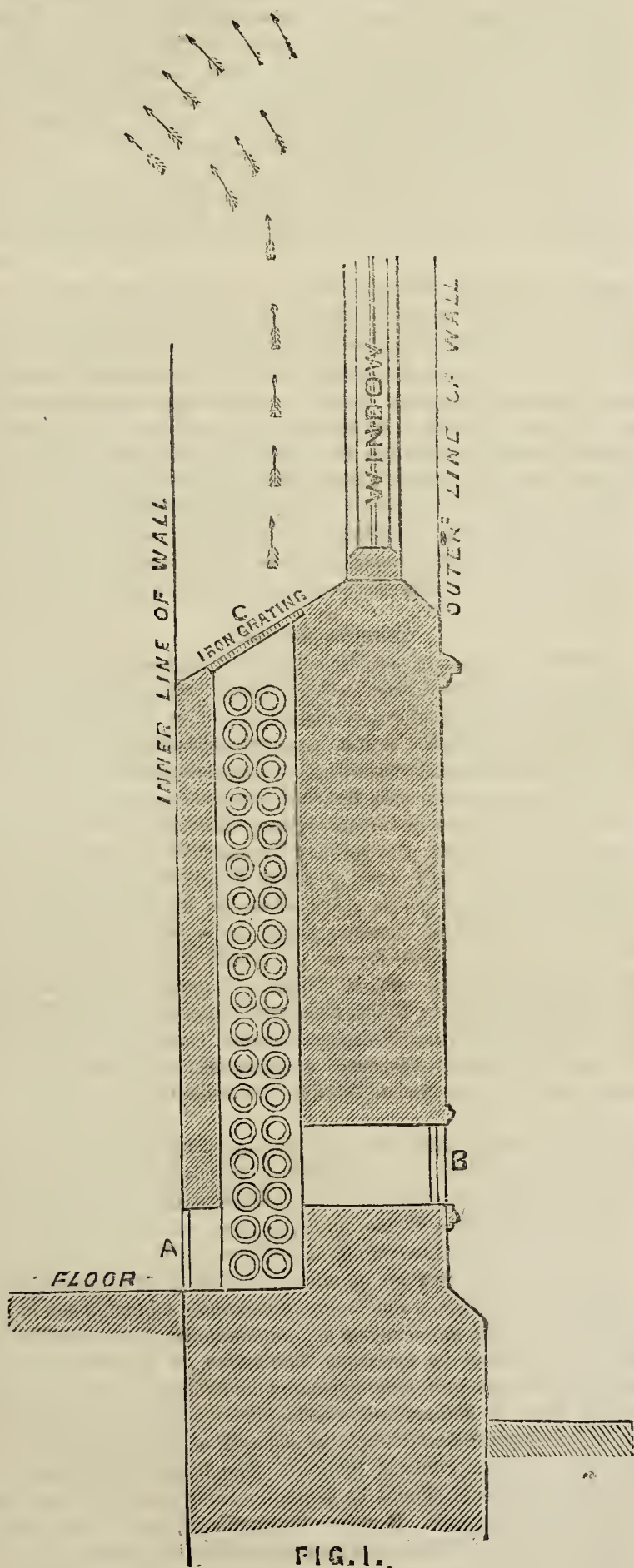


FIG. 1.

the church becomes thoroughly and efficiently warmed with great rapidity.

"Fig. 2 shows the section through the wall of a school, institution, or any domestic building at a window on any floor or landing.

The same description applies to this as to fig. 1, except that instead of the wall being built with a cavity, the window recess is carried down to the floor, and the pipes are covered by a wooden case, which can be made perfectly plain or highly enriched as its situation and surroundings may render appropriate.

"Among the advantages of this system may be mentioned the following. The pipes do not take up valuable space, as they do not project into the building beyond the inner line of the wall. All channels and gratings are dispensed with, and consequently

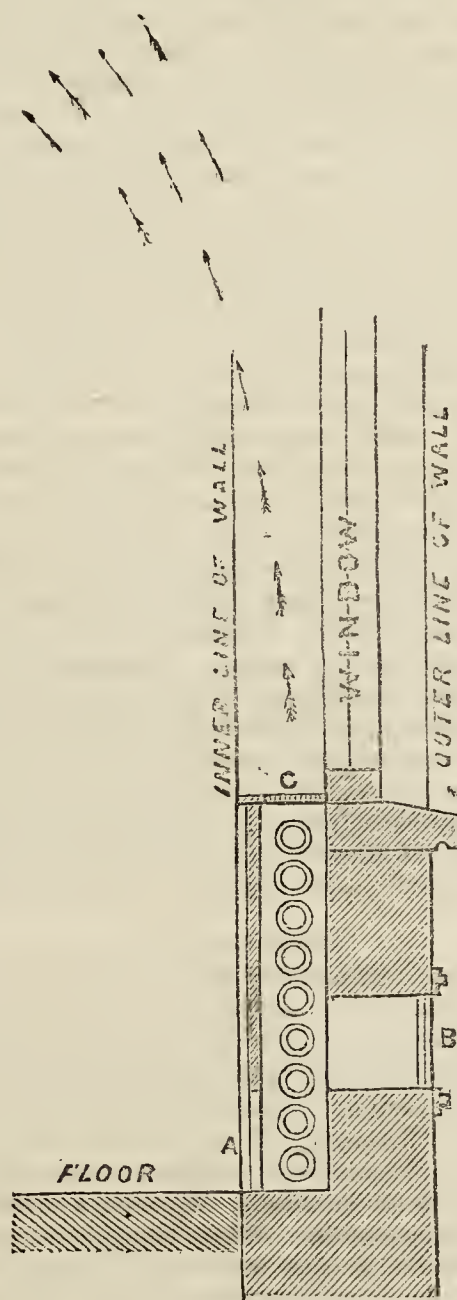


FIG. 2.

their cost. The pipes are placed in immediate contact with the greatest cooling surfaces—namely, the windows. It is not necessary to admit any cold air into the building, as the fresh outer air can be thoroughly warmed before being admitted."

Other advantages of this system are enumerated in the circular, but for detailed particulars it is better to write to Messrs. Weeks at their Works, King's Road, Chelsea, S.W.



KITCHEN GARDEN.

Forcing Department.—Continue placing fresh roots of Seakale and Rhubarb in the Mushroom house as may be necessary to maintain the succession, also plant Asparagus, supplying advancing crops with tepid liquid manure. Frames containing Asparagus will need night covering over the lights, and linings applied to the sides of the bed and frame to maintain the temperature. Admit air to this crop

whenever the weather is favourable, with a view to improve the flavour. Maintain the supply of Mustard and Cress by sowing at intervals. Introduce roots of Mint in boxes or pots to a house where there is gentle heat, assigning them a light position. Potatoes that have been placed in heat to accelerate their sprouting should, before they have made too much growth, be transferred to pits or frames, beds of leaves and dung being prepared for them covered with 4 to 6 inches depth of light rich soil, and when this is warmed through—the temperature not exceeding 75°—insert the sets about 4 inches deep and 15 inches apart. Earlier crops growing freely should be earthed up as needed. Probably the best very early crops are secured by placing three sets in 11 or 12-inch pots in Peach houses, and where several houses are started at intervals a succession of new Potatoes can be maintained for a considerable time. Peach houses in which forcing is being carried on are suitable for starting sets in, placing them rather thinly on a layer of leaf soil and covering lightly with that substance. Those previously placed in pots will now be growing vigorously, and should be earthed up by filling the pots to within half an inch of the rim with rich light soil. Potatoes require plenty of light and air, hence those in pits or frames will need careful attention as to ventilation, and must be well protected in case of frost. Dwarf Kidney Beans should be sown in pots at least once a fortnight, and earth up the plants advanced in growth, keeping them near to the glass, and when in flower supply weak liquid manure, maintaining a temperature of 60° to 65°. Sow Celery seed in pans for the first early crop, also Tomatoes, which should have a light position in a temperature not less than 60°. Prepare beds for Early Horn Carrots, Radishes, and Cauliflowers and Cos Lettuce, sowing the seeds as soon as the beds are ready. Endive, Lettuces, Cauliflowers, and Parsley in pits and frames should have as much air and light as possible during the warmest part of the day, taking care to have sufficient covering to exclude frost in severe weather. These remarks apply to plants now required for use. Cauliflowers under handlights or in frames for early summer should have air on all favourable occasions, also Lettuces in frames for early spring, as the hardier they are kept the more safely they will pass the winter.

FRUIT HOUSES.

Vines to afford ripe Grapes early in June must be started at once. The outside borders should have some protection, shutters or glazed lights are suitable. Supply water liberally to the inside borders for weak Vines; weak liquid manure at a temperature of 90° will prove beneficial. Economise fuel by having a bed of fermenting materials inside the house. Syringing will be required two or three times on fine days, and the maximum temperature must not exceed 65°, keeping it at 50° to 55° artificially. Maintain a mean temperature of 45° with a dry atmosphere. Where late Grapes are hanging on the Vines examine the bunches frequently and remove all decayed berries; ventilate freely on fine mornings with a little fire heat, and keep the house closed when the weather is damp. Vines from which the Grapes have been cut should be pruned. We advise cutting back to a plump bud as near to the stem as possible—indeed a modification of the close spur and the rod system, which admits of old enfeebled growths being removed and training young wood in their places. Cutting to the best bud will induce in course of time very long spurs, but then it is easy to encourage new growths. All loose bark should be removed, washing the rods with soap and water, and afterwards dress them with an insecticide. The border should have the loose surface soil removed, and receive a top-dressing of turfy loam 2 or 3 inches thick in which about 20 per cent. of crushed bones and wood ashes have been incorporated. The houses should be freely ventilated and kept cool.

Peaches and Nectarines.—When the blossoms of the trees started early in the month show the anthers, syringing them must be discontinued, but the borders should be damped in the morning and on bright afternoons, maintaining a night temperature of 50° in mild weather, and 5° less when severe, 55° by day artificial heat, or 50° if the weather be dull and cold, advancing to 65° from sun heat, not allowing the latter to be exceeded without full ventilation. Commence reducing the ventilation from 65°, but have the ventilators slightly open constantly at the upper part of the house. Turn on the heat

early in the day so as to allow of air being admitted, which is essential to the vigour of the flowers. Where the flowers are too crowded draw the hand down the back or under side of the trellis, which will remove some. Maintain a moist condition at the roots, and to weakly old trees afford liquid manure in a tepid state. When the pollen is in a matured condition apply it carefully to the stigmas with a camel's-hair brush, choosing the early part of sunny days for the operation. The trees to be started early in the new year should now be ready. If such is the case the house may be closed, ventilating freely above 50°, and employing fire heat only to prevent the temperature falling below freezing point. The border must be thoroughly moist; and if, as not unfrequently happens, the soil has shrunk from the walls, ram it well down before supplying water, or it will pass off without percolating through the soil. The trees may be damped on fine days in the morning and early afternoon. A covering of leaves or fern should be placed on the outside border, with a tarpaulin or shutters over at a sharp pitch to throw off rain and snow.

Continue pruning and cleansing the trees in the succession houses, not laying in the wood thickly, as to secure fine fruit of good colour and flavour it is necessary that the wood be stout, and the foliage have full exposure to light and air for the full development and maturation of the buds as well as perfecting the current year's crop. Most of the evils in Peach-growing arise from overcrowding the young growths and filling the houses with plants that necessitate the maintenance of too high a temperature for the Peach trees. This causes the buds to swell, and they are often checked by removing the plants and opening the house. All fruit trees require a long and complete period of rest to insure their continued health and fertility, and neglect in those respects is certain to be followed by defect in the crops.

FORCING HOUSES.

If the earliest Roses in pots be now placed in heat without pruning they will afford flowers earlier than those pruned, which may be introduced to heat to afford a succession. Tea varieties are unsurpassed. Niphetos is the best, flowering continuously, its fine white-pointed Magnolia-like flowers being always acceptable. Duchess of Edinburgh, bright crimson, is free and invaluable for early forcing; Madame Clavret, apricot-tinged salmon; Isabella Sprunt, sulphur yellow; Madame Falcot, pale yellow; Souvenir d'Elise, white; Marie Sisley, white; Mrs. Opie, rosy carmine; Monsieur Furtado, Mdle. Marie Amand, canary yellow; Perfection de Montplaisir, yellow; and Madame Alexander Bernaix, peach, are a dozen fine varieties. With a few of the freest-flowering Hybrid Perpetuals, such as Baronne de Rothschild, Alfred Colomb, Marquise de Castellane, Paulin Talabot, Boule de Neige, Comtesse d'Oxford, Sénateur Vaisse, Thomas Mills, Sir Garnet Wolseley, François Courtin, Comte Raimbaud, and Baronne de Maynard, a succession of flowers will be obtained, and be a welcome addition to the ordinary indoor flowering plants.

Regularly bring Hyacinths, Narcissuses, Jonquils, Tulips, and other bulbs into the house, placing them on shelves near the glass. At intervals bring in Rhododendrons, Azaleas, Deutzias, Prunuses, Spiræas, Dielytras, and Lilacs, syringing them occasionally; but do not maintain a very close humid atmosphere, as it will render the flowers less durable when cut or removed to the drier atmosphere of the conservatory. Lily of the Valley can scarcely be had in too large quantities either for conservatory or room decoration, or for cutting. Single crowns potted in cocoa-nut fibre refuse, or in pots or boxes, should be brought into heat regularly according to the demand, plunging them in bottom heat, and invert pots, pans, or boxes, over them to draw up the flower stems to a length of 4 to 6 inches, when they may be gradually inured to light. The bottom heat must be about 80°. Tuberoses should be potted in turfy loam with a sixth of well-decayed manure. Remove all the offsets, placing the roots beneath the soil, and plunge the pots to the rims in a bottom heat of 80° to 85°, giving no water until growth commences. Supply it moderately at first, increasing it as the growth progresses, being careful to have it of the same temperature as the roots. When in free growth afford weak liquid manure freely. A light airy position is necessary to insure sturdy growth, and the temperature should

range from 60° to 65° at night, and 70° to 75° by day. Pearl from its dwarf habit and pure white double flowers is the best variety.

TRADE CATALOGUE RECEIVED.

Osborn & Sons, Fulham, London, S.W.—*Catalogue of Vegetable and Flower Seeds.*



Jasminum gracillimum (G. G., Chichester).—Plants will, we believe, be ready for distribution during the ensuing spring.

Names of Conifers (Rev. H. Taylor).—All the sprays have been correctly named by the nurseryman's foreman as written in pencil on the labels; the names in ink are incorrect.

Cottager's Kale (Cottager).—Both the heads and the side growths are excellent when cooked, quite equal if not superior to the Curled Kale. Cottager's Kale is one of the hardiest and most productive vegetables that can be grown for winter and spring use. We observed some rows of it last spring affording valuable produce in a garden in the north, where all the other winter green crops, including Brussels Sprouts, were destroyed by the severe frost.

Piping Required for Heating (G. S.).—Had you stated the size of your house, the extent of glass exposure, aspect, and the heat you require, we could have answered your question more precisely. Under the circumstances we cannot do better than quote the reply that we gave to a correspondent last year on this subject:—"A good formula for finding the length of a 4-inch piping to heat a structure to any given temperature is to multiply the glass or exposed superficies in feet by eleven times the intended difference between the outside and inside temperatures, and divide the product by fifteen times the intended difference between the heat of the water (180°) and the air of the house."

Peas (Idem).—If you will inform us whether you require tall, medium, or dwarf-growing Peas, or some of each character, also whether you are prepared to purchase the new and necessarily expensive varieties, we will endeavour to answer your question. Without this information we are unable to do so usefully.

"Holy Ghost" Insect (Norfolk).—The small, white, midge-like insect to which you refer under the above name is probably *Aleyrodes vaporariorum*. The insects attack certain Ferns at Kew, and when the plants are moved "dart off," as Mr. Smith in his book on Ferns describes, "like a flock of white Pigeons." This insect used to be prevalent in the Cambridge Botanic Gardens, where it attacked the under sides of the leaves of Tobacco plants that grew in the houses; it also attacks Tomatoes and often injures them. The Fern *Nephrodium molle* is very liable to be infested with it, as also is the small evergreen stove plant *Oldeulandia Deppeana*. The insects can be destroyed by frequent fumigations.

Vines in Pots (Park Hill).—Whether the Vines will produce a satisfactory crop of Grapes next year depends entirely on the condition of the wood now. If it is strong and matured they may be expected to afford a fair crop, but not quite equal to that of the past season. You had better not destroy the roots to which you allude, but, on the contrary, mulch them with manure, and feed them liberally with liquid manure when the Vines are in full growth and the Grapes are swelling.

Protecting Roses (C. C., Donegal).—If the buds are inserted in dwarf stocks a little fern, straw, or stable litter placed over them during severe weather will prevent their being injured; if inserted in standard Briars they may be covered with a little hay, but in this case the Briar stocks are quite as liable to injury if the frost is intense as the dormant buds of the Roses. Unless the weather is very severe the dormant buds of Roses are seldom injured.

Garden Walls (Deodar).—If you send 3½d. in postage stamps to the publisher and ask him to send you No. 355 of the Journal you will find fuller instructions, with illustrations, on the subject in question than we can possibly afford you in this column. Glass copings are useful additions, but good crops of fruit are produced when the trees are protected with nets or other coverings in addition to the ordinary stone copings. When walls are wired their surfaces are preserved in better condition than when nails are being constantly driven in for securing the branches. If you use galvanised wire it will be prudent to have it painted. If you need further information we will readily supply it.

Cucumbers Gunning (T. C.).—Like Mr. Fish, whose experience you have referred to, we have had plants troubled with this disease, but, on adopting similar measures to those described in the article in question, it disappeared. It appears to be more virulent in your case, and we regret that we are unable to recommend any other remedy than that we adopted ourselves and the practice of another cultivator. We emptied the house of every particle of soil, burnt sulphur in it, washed every portion of brickwork with hot limewash, painted the woodwork, and used soil for growing the plants less rich and in less quantity than before. Dressing the affected parts with charcoal dust we have found of benefit; and Mr. Cooling of Derby, who used to grow Cucumbers extensively for seed, informed us that he had quite checked this form of disease by dusting the plants and also the bed frequently and freely with Amies' manure. This fertiliser, being a dry powdery substance, would, we presume, have the same effect on Mr. Cooling's plants as crushed charcoal had on ours, and you might well try the remedy; it could not possibly do harm, and might do good. You might also try the plan of growing the plants in large pots, but the roots permitted to pass over and through them into very rough soil, as practised so successfully by Mr. Coleman at Eastnor Castle, as referred to on page 336 in our issue of November 1st, 1877.

Culture of Herbaceous Calceolarias (D. Williams).—No artificial heat is required except to exclude frost. Keep your plants upon a light airy shelf near the glass. Repot from time to time as soon as the roots touch the sides of the pots in soil consisting of equal parts of loam and old rich manure, with about a fourth part each of sand and pounded charcoal, taking especial

care to use plenty of drainage. Attend well to watering, and fumigate with tobacco paper to keep down aphides. For large specimens it is necessary to nip out the centre of the plant to induce it to form a strong lateral growth. Cease repotting as soon as the flower stem begins growing, and then substitute cowdung water or sewage for the clear water. By close attention to this simple formula you may grow plants for exhibition with success and derive much pleasure from the work, for no plant with which we are acquainted rewards one better for care and attention than does this.

Tomatoes in Greenhouse (J. L.).—You will have sufficient heat in your house for growing Tomatoes, and a free-fruited and good variety for the market is the Old Red. If you require a crimson variety you may grow the Conqueror or the earlier but smaller Vick's Criterion. The best yellow-fruited variety is Carter's Green Gage. It is impossible for us to answer your second question, as everything depends on your skill as a cultivator and the demands of your neighbourhood. If you have never forced Kidney Beans your first attempt will possibly not prove so profitable as you anticipate, and if you have not had experience in forcing Potatoes you will possibly err by affording them too much heat. You wrote your letter so hurriedly that some words were omitted, and it is impossible for us to ascertain from it whether your large house is provided with bottom heat or not.

Grafting Pereskia aculeata (L., York).—Take off the head of the Pereskia at the required height, and make a slanting cut upwards, and about an inch long, at the top of the stock and on one side. You will cut off a stem or branch from the Epiphyllum to be grafted upon the Pereskia, and pare one side at the lower end in a slanting direction downwards, making it quite thin at the bottom, and so that the cut part shall fit that of the stock exactly. About half way down the slanting cut in the stock make a cut downwards, and about half an inch long, and make a corresponding one upwards in the graft, which will make a sort of slit or tongue in each; that of the graft should be introduced into the one in the stock, and pushed downwards, so that the cut portions of both may fit correctly. The graft may be fastened or bound to the stock with a strip of bast matting, still keeping it in its place and tying tolerably tight, but not very much so. The junction may then be covered with moss, binding it on with matting. It is not necessary to cover with clay. The plant may be placed in a house where there is a gentle heat, and graft and stock alike sprinkled with water twice a day by means of a fine-rosed syringe. When the graft begins to grow the matting should be loosened. The best time to graft is in spring, or a little before the Epiphyllum begins to grow.



POULTRY, PIGEON, AND BEE CHRONICLE.

LESSONS TAUGHT BY THE EXHIBITION OF FAT STOCK.

THE exhibitions of fat stock previous to Christmas at Islington, Bingley Hall, and the various large towns and districts throughout the kingdom, cannot fail to be instructive to inquiring men of business habits. The exhibitions are patronised not only by the wealthy agriculturists, but also by royalty and the nobility and gentry of the kingdom; and as this is the case the home farmer may feel assured that all the ability and experience which wealth can command has been applied to the breeding, rearing, and feeding of the best animals. Therefore the opportunity for men to learn in this branch of the agricultural profession is of the highest value, especially when we consider that the making of fat stock is the chief aim of the most important part of agriculture. The maintenance of the pastures, the cultivation of the land, the choice of seeds, both of roots, grasses, and green crops, as well as of a large portion of our pulse and grain crops, are performed with the view of providing for the live stock and preparing the land for the production of Wheat and other crops. It is therefore extremely desirable that the feeding of stock should be made profitable as a farming transaction, and in order to accomplish this the home farmer should certainly be allowed by his employer to visit these exhibitions. He must remember that he is differently situated from an ordinary farmer or occupying tenant, who has chiefly to look to profit alone; the home farmer has, however, to provide and feed stock which must be made profitable, but at the same time it must be ornamental to some extent in the park lands and pastures. These matters must also be arranged in accordance with the tastes of the employer, who may prefer particular breeds; and this must therefore influence the choice of stock, bearing in mind that during the year a considerable

proportion of the stock fattened will be required to supply the requirements of the establishment.

We will take it for granted that on visiting a well-conducted cattle show a lesson may be learnt in almost every class. We ask the home farmer to do as we have done for more than fifty years—not only to take particular notice of the animals which are distinguished by the award of a prize, but to satisfy himself of the reason why such an animal should have obtained the prize. This cannot always be done, except by reference to some experienced man, when it will be often explained without much hesitation, and must be remembered by the home farmer to serve him in his future transactions. One circumstance serves to confuse the mind of the novice—namely, the judges themselves do not always agree. Instances of this occurred in the awards at Birmingham and the metropolitan shows held lately, for the same animals exhibited at both exhibitions were differently placed by different judges. This has always been the case, owing in a great measure to the difference of the experience and tastes of the persons entrusted with the duties of judging. We will endeavour to show the home farmer the advantages to be obtained in viewing a cattle show at the present day as compared with former periods. We remember when the Smithfield Club Cattle Show was held in the Baker Street Bazaar, and we have reported upon their meetings under great difficulties compared with the present facilities. The stock, too, has greatly improved, for instead of the old animals of enormous bulk and weight we have now specimens with the flesh as even as possible, so that the animals not only look even to the eye, but when dead are found to have the lean and fat so well mingled as to constitute meat of the finest quality.

There is another great and distinguishing feature in our present exhibitions—namely, early maturity, which is a point of great importance. It began first to receive special attention about 25 years ago, and now cattle at two years old compete as fat animals; also in the sheep classes lambs born in the year are in a class by themselves. In the pig classes, too, early maturity is also encouraged. At Islington this year the Devons steers under two years old averaged about 74 stones of 8 lbs. dead weight, the Herefords 83 stones, the Shorthorns 97 stones, the Sussex also 97 stones. In these weights we have felt some disappointment, because in referring to our own list of Shorthorns of the same age we find that twenty years ago stock was sold at nineteen and twenty months old weighing from 98 to 100 stones of 8 lbs. carcase weight, besides large amounts of internal fat; the animals alluded to being ordinary Shorthorns without pedigree, but were very carefully box-fed, and were never off the straw during their life either in summer or winter. In making up our cattle for early maturity we never resorted to large allowances of cake, hay, &c., and during the second year of their life they received no more than 4 lbs. of cake and 2 lbs. of bean meal daily mixed with cut roots, no hay being used, only good sweet straw *ad libitum*. Our experience has taught us that young cattle are best made out at an early age by moderate feeding, and always under cover, so as to insure health as well as gradual increase of weight and condition. If we require a perfect fat animal it must be fat as a calf, and also at any other age to which it may be kept, to insure with the greatest certainty the greatest weight for age of the choicest quality. We cannot recommend any particular breed for fattening, because this must have reference to various circumstances. It must, however, be noted here that the crossbred cattle, say the first cross, such as the Shorthorn and Aberdeen, and others, have been successful at various times in carrying off the champion prizes at the Smithfield Club Show, and probably quite as often as any one of the pure breeds. To have the pure-bred animals is essential to producing a successful cross. It appears that it is not necessary to take pedigree stock for fattening for profit, but often the reverse, as the butcher only requires weight and quality. From all that we can glean after many years' observation we think it will prove very difficult to maintain the present pure breeds in their native excellence without deprivation, notwithstanding they may be reared within the lines of pedigree.

In referring to sheep at the fat stock shows lately held we cannot notice any improvement in the various breeds; still, the Hants Downs must not pass unnoticed, but even these have obtained more observation from the fact of lambs being introduced into the prize list at Islington. Mr. Morrison's lambs are worth the attention of the home farmer upon the lines of early maturity. We noted that the dead weight of these amounted to from 28 to 30 lbs. per quarter, or from 14 to 15 stones of 8 lbs., the probable age being about eleven months, and will be sold as ripe mutton. We do not notice that any lambs of other breeds or crosses are quite so heavy as the Hants Down, yet, as they usually fall later in the spring, those exhibited were no doubt younger

animals. These Hants Down lambs attract more notice than any other stock, and there is no doubt that they are better adapted for early maturity than any other pure breed; still we cannot forget the crossbred lambs exhibited at Easter for prizes in a southern county, which have frequently reached a dead weight of $10\frac{1}{2}$ to $11\frac{1}{2}$ stones of 8 lbs. at the age of five and a half to six months old, but raised from various crosses, such as down and Somerset horned stock, also Devon and Cotswold crosses. It is fair to infer that had these lambs been carried forward by good feeding until eleven months old they would have quite equalled anything yet exhibited, and probably surpassed it, both in weight for age and quality of meat. Swine will always be useful on the home farm, and it is of consequence for the home farmer again to notice those breeds which will yield the greatest weight for age of the best meat. Instead of adhering to any particular breed, whether of Berkshire, Sussex, Essex, Middlesex, Small White, or Large Yorkshire White, we should use the first cross, such as a Berkshire sow and a large Yorkshire boar, and a cross in the same way by the other smaller breeds, taking care, however, always to breed from stock having plenty of long soft hair, this being the best indication of a tendency to yield a good proportion of lean meat.

WORK ON THE HOME FARM.

Horse Labour.—Fallow-ploughing must still be continued until it is completed, and the sooner this is done the better, so that the soil may receive the usual benefit from frost. All strong flat-lying land should be ploughed a good depth, and have deep cross furrows, to be afterwards made with the spade somewhat deeper than the land furrows, in order that heavy rains may escape readily. When water is allowed to lie about on the fallows it hinders the work of early ploughing and cultivation in the spring. Carting ought now to be continued, in order that the farm horses may not be idle, which is sure to injure their health, because when they have been accustomed to severe labour during the summer and latter seedtime, if not exercised their legs often become swollen. Carting has reference to various necessities on the home farm, varying in different parts of the country. On farms with parkland and pastures attached all odd times should be occupied by collecting and carting earth and vegetable matter, as anything that will readily decay in heap will not only be found useful for application to grass land, but collecting them will tend to keep the roads, dykes, yards, and farm premises clean, and save an outlay for artificial manures in dressing the pastures. The depth of the fallow-ploughing is a matter of more importance than some persons admit, and farmers are often advised to plough deeply without reference to the nature of the subsoil. If we have to contend with a clay subsoil not rich in potash it is lost labour to plough deeply; in fact, every farmer should have an analysis of his subsoil before he decides what depth to plough the land. Again, in some instances, without reference to analysis, the subsoil is charged with weed seeds, or it may require a dressing of chalk or lime. We recommend that those soils which have a hard subsoil should be ploughed the usual depth only, but be followed in each furrow by the subsoiling implement, so that the crust below should be loosened without being brought to the top.

Hand Labour.—Some little assistance will be required by the shepherd and cattle man in cutting out hay and straw, preparing roots for the cutter, trenching in the meadows, hedging, and banking. Roadside work also should now be done, in order that the work of spring may not be displaced, because every period brings its work on the farm, and if any labour peculiar to it be omitted it will disturb the arrangements and cause extra expense. The old scourge, the foot-and-mouth disease, is now prevalent in various districts, and is daily spreading. It will be well to avoid purchasing fresh stock from the markets at present, for although the cattle may not show symptoms of disease yet they may be infected, and this disease is of such a nature that the men in charge of infected stock will often carry it in their clothes from one district to another. Extreme care is therefore necessary in all transactions where cattle and sheep drovers are passing to and from the markets. It appears from the veterinary reports that sheep and pigs are likewise infected; this makes the matter still more complicated and difficult to avoid. Severe losses occur through this disease; for although with careful treatment very few animals die, yet it often ruins a whole dairy of cows indirectly for years after it has disappeared. Foot-rot lameness is also increasing, especially where the sheep are being fed with roots upon wet flat-lying soils or on pastures. This, too, is a disease which spreads by infection, and sheep fed in troughs more often break down with foot-rot in consequence, and they should therefore be selected and kept separate if only a few are affected. If, however, the attack is general the animals should be driven to coop every day, and the diseased feet should be dressed as fast as they occur. This is the only way to keep it under. It is no use for the home farmer to say that the outbreak is too extensive to be treated with success, for unless it is met with good remedies and determined and careful dressings daily, it will very soon destroy the whole of the profit on the flock. Let us suppose with a flock of several hundred sheep that it is necessary to employ two men who understand the treatment every day for three months, what is the cost of the labour compared with the loss of the sheep if the disease is allowed to run its course

unchecked? We have had experience in this matter for many years, but we never hesitated to employ sufficient skilled labour to keep the disease under. Our remedy is as follows:—Take 3 ozs. of nitre, 3 ozs. of blue vitriol, 3 ozs. of coarse gunpowder reduced to a very fine powder, and well mixed with hog's lard; it will then keep ready for use. This we have found a satisfactory remedy for forty years past, but the sheep must be attended daily, the feet pared if necessary, and after the dressing to stand on dry straw for two hours.

POULTRY IN GARDENS.

FEW can deny that gardeners have generally regarded poultry with antipathy, but this, I am glad to say, is fast changing, and those who have to employ artificial heat are rapidly becoming aware that the heat conveyed into the hothouse and Orchid house may be profitably utilised in hatching chickens in the winter, and rearing them in the orchard house. They also erect their poultry houses close to the chimneys of the boiler fires; thus the heat given off causes the fowls to lay at a time of year when eggs are most valuable, and at the present time I am obtaining eggs of fancy breeds from gardeners who supply the London markets with early Cucumbers and hothouse Grapes.

It is well known that poultry like plenty of space and new ground; and turning this to account, one fruit-grower in Essex thought he would exhibit at a poultry show, and he was surprised upon visiting the show in the afternoon to see all his birds marked for prizes, and also to find that they were so much larger than any others exhibited. This, he assured me, was entirely owing to their early development in the spring months in the vineries. He had the earth forked up frequently under the Vines, and he did not find any ill effects from the small chickens. In fine weather the birds run out from the ventilators close to the floor, and soon find their way into their own house. In several instances where the eggs were set under hens, as soon as the chickens were hatched he moved the hen and coop into the vineries, and he hardly lost a chick. Birds as soon as they are hatched appear to hunt for insects, and when all is cold outside the house insects flourish within. Chickens cannot mount up to the fruit and to the shelves, therefore they content themselves with searching about on the floors and walls.

In America it pays well to have Turkeys driven through the crops of plants intended for seed, and over the tobacco fields. Ducks do a considerable amount of good in a garden, and it pays to allow a flock of them to pass through the beds, if the boys are watchful to keep them from eating the Lettuces and other tender plants. They do work which it is impossible to have so efficiently executed by any poisonous compound or lime, because they are provided with both sight and touch, which enables them to collect the small insects, and the more work there is to do the happier are the birds. I hope that gardeners reading these remarks will try and overcome their hatred of poultry, and endeavour to find them a corner in every establishment.—THOS. CHRISTY, F.L.S., *Malvern House, Sydenham, S.E.*

THE CLOSE OF THE SHOW SEASON.

THE chief events of the exhibition year are now things of the past. The real contest is over, but there are still some skirmishes, and even a sharp struggle or two yet to come. Our friends north of the border are a little later than we are down south, and there is yet a chance even in the south for the late-hatched and the late-moulted birds.

The new year opens in Scotland with the *Paisley* Show, which has thirty-two classes for poultry and fifteen for Pigeons, with five prizes in most of the poultry classes and four in all the Pigeon classes, with a great array of weather-glasses for special prizes. We presume our northern friends look anxiously forward for days free from mist, and that the thirteen weather-glasses will prove an attraction.

On the same day as Paisley another Scotch show, *Kirkcaldy*, is to be held. Here there are thirty-three poultry and seventeen Pigeon classes, with three prizes in each. Next comes the Show of the Northern Poultry and Pigeon Club at *Aberdeen* on the 6th, 7th, and 8th of January. This promises to be a really first-class show, as there are no less than fifty-seven poultry and twenty-four Pigeon classes. There are four prizes in each class (the fourth being a eard) and ten cups. Brahmas and Cochins seem to be hardly dealt with, as all colours have to compete together. However, we suppose that the Asiatics are not popular with the Aberdeen folk. We thought Scotch Greys might have usurped their place, but were surprised to find that they had not even one class. The entries have closed in the case of these three Scotch Shows, but we mention them so that such of our readers as are within reach of them may not forget to pay them a visit.

Kendal on January 13th, 14th, and 15th comes next on the list with fourteen cups, forty-three poultry and twenty-two Pigeon classes. Poultry have three prizes of £2, £1, and 10s., with an entry fee of 6s.; Pigeons a like number of prizes of half the respective amounts, and a 3s. entry fee. The entries closed on the 29th December. Messrs. Dixon, Addie, and Charlton judge the poultry, and the latter gentleman the Pigeons.

One day later than *Kendal* comes *Stockport*, with twenty open and twenty-four local poultry classes, with £2, 15s., and 5s. in the former, and £1, 10s., and 5s. in the latter. Pigeons have fifteen open and nine local classes, the prizes in both sections being 15s. and 7s. 6d. The entry fees are 4s. and 2s. 6d. respectively. There is a five-guinea prize point cup for poultry, and a similar £2 2s. cup for Pigeons. These cups may increase the entries, but they also lead to borrowing and are thus objectionable. The judges are not announced. The entries close January 1st.

Dorchester takes place on the 19th and 20th January. Here we have the promise of a good Show, as there are twenty-one cups, forty-five poultry, and sixty-six Pigeon classes, with three prizes of £2, £1, and 10s. in the former, and three of £1, 10s., and 5s. in the latter case. The entry fees are 5s. 6d. and 3s. 6d.; and the Judges announced are Messrs. Tebay and Dixon for poultry, and Messrs. Jones and Esquilant for Pigeons. Entries close January 6th.

Lincoln follows on the 22nd and 24th January. Poultry have twenty-four classes with four prizes of £1, 10s., 7s., and 4s., and an entry fee of 4s. Pigeons eighteen classes, with four prizes ranging from 15s. to 3s., and an entry fee of 3s. Messrs. Dixon and Smith judge the poultry, Mr. R. Woods the Pigeons. The entries close January 10th.

Next on our list comes *Liverpool*, which is to be held under Poultry Club rules on the 26th and 27th January. It is, we believe, some years since a show was held at Liverpool, and the schedule is a modest one. There are twelve cups with thirty-eight classes for poultry, the prizes being four in each class, and ranging from £1 downwards. The entry fee is 4s. Mr. Horsfall is to judge the Brahmas; Mr. Cresswell the Cochins, Dorkings, Hamburgs, and Leghorns; and Mr. Tebay the remainder of the poultry. Pigeons have fifteen cups and specials and thirty-one classes, the prizes here being 15s. first down to 4s. fourth, with an entry fee of 2s. 6d. Mr. Cresswell judges the Turbits and Fantails, Mr. Graham the Dragoons, and Capt. Heaton the remainder. We trust our Liverpool friends will have a good entry, and that the Show may become a fixture. The entries close January 5th.

Wolverhampton ends our list, and is regarded as one of the leading events of the year. Poultry Club rules are here also in vogue. There are twelve cups for poultry and Pigeons. Poultry have fifty-one classes with liberal prizes, and the classification is improved, there being now separate classes for old birds in some varieties which had in former years to compete in pairs. Pigeons have twenty-three classes with four prizes ranging from £1 downwards. Mr. Lane judges the Game and Game Bantams; Mr. Cresswell the Dorkings, Brahmas, and Cochins; Mr. Dixon the remainder. Mr. E. Hutton of Pudsey, Leeds, takes the Pigeons. The entries close January 19th. We have now noted all the forthcoming Shows of importance except perhaps Cambridge, which is to be held the days immediately preceding *Wolverhampton*, and the schedule of which has not yet reached us.

THE SCOTCH GREY FOWL.

READERS of this and other papers are frequently asking which is the most profitable fowl to keep; and I think, if the Scotch Grey cannot be said to be the most profitable, it may at least be named as one of the best. To rear for table or keep for laying they are most satisfactory. Young cockerels six months old weigh as many pounds, and by the time they are fully matured they will turn the scales at 10 lbs., and this with flesh of the Dorking or Game fowl texture and flavour. The hens average from 6 lbs. to 8 lbs., and they are capital all-the-year-round layers. In my opinion the best way to secure this very desirable quality is to have a hardy fowl, as tender varieties never lay well in severe weather; and it is in this the Scotch Greys possess great advantages, as they are extremely hardy and not readily influenced by sudden changes of weather, nor do they appear the least subject to early infirmities, as I have hens over three years old now as hearty and laying as well as one-year-old pullets. They are easily reared, feathering quickly, and taking good care of themselves. They have not the same rambling inclinations as Hamburgs, and they succeed remarkably well in confined runs—a circumstance not to be wondered at, as their hardy character easily accounts for it.

As these remarks apply chiefly to their value for table and

laying, it will hardly be necessary to say much respecting their exhibition qualities; but here again they are not deficient, as they are beautiful birds in the show pen, and in Scotland they always head the list at the best shows. At the late Edinburgh Show there were 130 pens of Scotch Greys, which proves that in the north they occupy the position they so well deserve.

True birds have a Dorking-like head, and evenly dappled grey or cuckoo colour. The legs are generally the same colour until the birds are a year old, when they become quite white; and in this respect they differ widely from the Plymouth Rocks, which they otherwise somewhat resemble, as the legs of the latter are so yellow that they are not readily disposed of in market.—J. MUIR, *Margam*.

SMALL POULTRY YARDS.

I SHOULD be much obliged to "M. M." if he would give some more minute details concerning the fowl yard of Mr. Clatworthy. The whole yard appears (see page 560) to be 42 feet long by 27 broad; if out of this there be taken a grass plot 27 by 12, and a 2-foot path all round it, there is left a space of $5\frac{1}{2}$ feet. The circumference being divided by 12 gives to each run a space of about 12 feet by $5\frac{1}{2}$. Is the whole of this space roofed-in and divided? If so, is it divided by boards, with only wire in front? If only the roosting place is roofed-in, what is its size? Then again, "M. M." speaks of the top range being divided into twelve coop-like runs. I hardly know what a run would be like to resemble a coop, and if by the top range is meant a space at the end 27 by $5\frac{1}{2}$ I cannot see of what use this would be when divided by 12 for rearing chickens. Would "M. M." or Mr. Clatworthy furnish a drawing of the runs and roosting places, so as to give others an opportunity of following so good an example?—C. J.

EYMORE BLACKS.

MR. T. C. BURNELL, in the pages of a contemporary, states his reasons for giving these birds a prize at Birmingham. He had awarded one prize to La Flèche and another to Plymouth Rocks, then he had to find a third-prize pen. The representatives of other known breeds present were defective in one characteristic or another; and although he might have gone to a second pair of good La Flèche, he considered that "this would be making it pretty much a La Flèche class," and it has always been his endeavour in a mixed class to distribute the prizes as equally as possible. He has always understood the Variety class to be meant especially for any new variety. The clean-legged Langshan-like fowls called Eymore Blacks were in brilliant condition, and were perfectly new to him. He could not see any other pen particularly deserving a prize, so he gave the third to the Eymore Blacks.

The explanation renders the Judge's method of reasoning which led to award the prize plain to all, but we must say that we cannot agree with Mr. Burnell. We think a judge who undertakes to award the prizes in a Variety class should make himself acquainted with every known variety, and that an exhibitor who in these days of easy diffusion of knowledge hides his newly found treasures under a bushel until they appear in the show pen ought to expect to have them passed over by the judge. It is manifest that the system of awarding a prize to a bird simply because you have never seen its like before is an erroneous one. The exhibitor of known varieties is obliged to at least approximate to a standard, and is thus placed at a most unfair disadvantage as against the exhibitor of a breed which may have come from "a hitherto unknown port of the Black Sea," as Mr. Burnell jocosely puts it, but the points of which are as unknown to the judge as the port in question to the geographer. Will the exhibitor tell us something about these Eymore Blacks? We would suggest as a heading for his communication, "Results of a Cross between a Langshan and a Dorking."—A FANCIER.

EFFECT OF HENBANE ON FOWLS.

IN your issue of December 2nd I read with much interest your answer to a correspondent on the effect of Foxglove on fowls. Of that plant I have not had any experience, but I can speak of the Henbane, which is a very destructive plant to poultry generally. A friend lost two Ducks full grown without being able in any way to account for their deaths. These Ducks had been to the bottom of the grounds where Henbane was growing, and there also was a fowl house in which a few fowls were kept, one of them a great pet. At feeding time this pullet could not be found, but on looking into her roosting place she was discovered standing up with her neck stretched out and her beak resting on

the ground as if all spinal power was gone. She was taken in and dosed with brandy and water for two days; she recovered, and is now strong and well, and was able to make her appearance in the show pen. The Ducks had no antidote administered, and therefore paid the penalty of their greediness. A few days after this occurrence I read the following in a French poultry book:—"The Jusquame, a poisonous plant very common in our villages, and unfortunately much sought after by Ducks, Geese, and other fowls, is mortal to them all. It is this Jusquame noire, which the English designate by significant appellation of Henbane, otherwise poison for hens."—LA FLÈCHE.

VARIETIES.

WE understand that the last Committee meeting of the Poultry Club for this year was held yesterday (29th) at Oxford.

—HEREFORD POULTRY FAIR.—Probably the largest poultry market or fair held in the kingdom is that which takes place at Hereford before Christmas. It was held on Wednesday in last week, and in spite of most unfavourable weather the city was thronged with visitors to it. The following is from the account of it in the *Hereford Times*:—"Hereford Christmas poultry market has for an age been famous for the great quantity, fine quality, and exceptionally good dressing of poultry. In the arts of breeding, plucking, and dressing, the Herefordshire farmers' wives and daughters have always carried off the palm, though the scalding and drawing of the poultry, while giving a fine and tempting appearance to it, does not allow of its preservation for such a length of time as when it is not drawn. This objection, however, cannot have much weight when the market is so near Christmas day. The fame of Herefordshire poultry was at its height years ago when prizes were given at the Christmas market for the best specimens, and spectators as well as buyers came from long distances. These prizes were discontinued about ten years ago, when some of the unsuccessful exhibitors contended they were as deserving of the prizes as the successful exhibitors. The absence of the prizes has since been continually regretted. A new generation of stallholders have since then entered the lists, and maintained the good name which the old stallholders obtained for good poultry. The attention previously paid to fattening for the Christmas prizes was directed more to the breeding; and the poultry, minus much of the usual fat, became still more appetising at the dinner table, and profitable also to the consumer, for it is stated there is considerably more flesh-forming matter in poultry than in butchers' meat. At this year's great Christmas poultry market, which was held on Wednesday last, money prizes as undermentioned were once more given for the best poultry, not simply for select birds that might be chosen by their owners for competition in the hop room as in years gone by, but for birds pointed out in the open market by an able judge." Stalls were held by about one hundred farmers' wives and daughters, and on some of them there was a magnificent display. On one there was 105 head of poultry. One purchaser is said to have taken away a ton of poultry. The largest Turkeys weighed about 30 lbs., the largest Geese about 16 lbs. The prices obtained for Turkeys, 1s. to 1s. 3d. per lb.; Geese, 8d. to 10d.; Ducks, 6s. to 10s. couple; fowls, 4s. 6d. to 8s. and 10s. couple; eggs, eight and nine the shilling.

—DEATH OF MR. MECI.—The death is announced of Mr. J. J. Mechi, the well-known agriculturist, whose recent failure evoked so much sympathy. It took place on Sunday last at Tiptree Hall, Essex. Mr. Mechi, the son of Giacomo Mechi, a citizen of Bologna, who early in life settled in England and obtained a post in the household of George III., was born in London in May, 1802, and was trained in a mercantile house engaged in the Newfoundland trade. By his industry and the profits derived from an invention of his own he was enabled to start in business as a cutler in 1827, and between 1830 and 1840 realised a fortune by the sale of a razor strop which bore his name. In the last-mentioned year he bought the farm at Tiptree Heath, consisting of about 130 acres of inferior land, and forthwith began his farming experiments by deep draining and the application of steam power. He was laughed at by his neighbours as an enthusiast, but he persevered, and by-and-by made the farm pay a handsome profit. In 1856 he was appointed to the shrievalty of London, and was elected an Alderman the following year. About this time

he was presented with a testimonial of the value of £500, subscribed by noblemen and gentlemen interested in scientific agriculture. He was a Juror in the Department of Science and Art at the Great Exhibition of 1851, and at the Paris Exhibition four years later he was specially sent out by the English Government. After eight years' service as Alderman of London he resigned his gown, very much against the wish of his constituents. Mr. Mechi was the author of several works on agriculture, the most popular being, perhaps, "How to Farm Profitably," of which many thousand copies were sold. Doubts have often been cast on the pecuniary results of Mr. Mechi's farming, but in his circular made public last week he reaffirmed that they were satisfactory, and declared that his failure was due to losses on his London business.

— **A NEW CROSS-BRED TABLE FOWL.**—The following letter of a correspondent of Mr. W. B. Tegetmeier's has been published in a contemporary:—"I have long thought whether one could not start a new and better race of poultry for table purposes. I farm some 300 acres of land, and have tried various kinds. Dorkings were always favourites; but though I have had no difficulty of getting very large birds, they were undoubtedly bad to rear, few hatching out, and some of these dying. I now keep at my farm buildings, at 600 feet elevation on limestone, Houdans, about thirty hens at the beginning of the season, and here, just where the red clay ends, about as many Dark Brahmas. These breeds fit in well. The Brahmas lay all winter and the Houdans all summer, and the Brahma hens hatch out the Houdans for table. Being able to keep two breeds, and being obliged to have heavy fowls here close to the garden, this is the best combination I have come across. But Houdans are not so good to eat as Game, and I think not as Dorkings. I have tried the Dorking and Brahma cross—tremendous birds, and the hens good-looking, but the cocks very ugly. Houdan cock and coloured Dorking hens made good early-maturing fowls; and, curiously enough, they were all jet black, and of very marked character as to comb, tail, &c. The reason of this letter is to ask whether it would not be better to cross the Dorking cock with Black-breasted Red Game hens, inasmuch as the latter are said to be so much better layers than Brown Red, and therefore more likely to produce a laying as well as a fattening breed—a great desideratum."

— **MALICIOUS INJURIES AT POULTRY SHOWS.**—Seldom has a more dastardly act been brought to light than that disclosed last week by the examination of the contents of the stomachs of the birds which died at the Vale of Severn Society's Show. On the second day of the Show the occupants of five pens of prize Bantams were observed to be ill, and before the end of the Show the birds were all dead. The stomachs were sent for analysis to the public analyst for Northumberland, and he has reported that the birds died from the effects of phosphorus given in the form of paste. A reward of £10 is offered by the Society for such information as will lead to the apprehension and conviction of the persons who administered the poison. We trust that they may be discovered and punished as they richly deserve.

SUCCESSFUL BEE-KEEPING.

THE recorded results of bee-keeping in Scotland this year are very satisfactory and encouraging. The records of such results will do good by stimulating the hopes and renewing the energies of many apiarians on this side of the Tweed. While the records mentioned, coming as they do from three separate counties, maintain the renown of Scotland for successful bee-keeping, it is to be hoped that they will sharpen the discernment of English bee-keepers. Though we have had many unfavourable seasons for honey during the last ten years, especially in the midland and north of England, let us hope that good seasons and times will come, and that we shall be prepared and ready for them when they come. In the recorded results we are going to review we have a wealth of evidence that bees are wonderfully industrious, that bee-keeping is interesting and profitable, and that, though much depends on the skill and attention of the apiarian, success may be attained with all kinds of hives. The secret of successful bee-keeping is very simple. Some days ago I received a letter from one of the most careful and successful bee-keepers I have ever known. He conveys his secret of success in few words, as follows:—"As for profitable management, the main thing is to study bees thoroughly, give them room enough, feed them when they require it, and give no more than they need. Bees will

gather and make as much honey in a flour barrel as in the finest bar-frame or Stewarton hive ever made. With fine weather and plenty of room bees will work well anywhere, even hanging on a tree.

This is the statement of Mr. James Rennie of Carluke, one of whose hives with its swarms rose this year to the gross weight of 474 lbs. These figures were offered to the bee-keepers of Great Britain, and comparisons were invited. Mr. Anderson of Dalry, who is a well-known and successful Ayrshire bee-keeper, comes to the front with a higher figure still—namely, 481 lbs. from a Stewarton hive, and its swarms belonging to Mr. James Crawford of Arran. I cordially thank Mr. Anderson for the record of such work. Mr. Raitt and Mr. Mann of Perthshire give us the receipts of honey and money from a bar-frame hive belonging to Mr. Mann. I am glad they have done so. From this bar-frame hive 122 lbs. of honeycomb in 1-lb. sections and 30 lbs. of extracted honey were taken, and 40 lbs. of honey left for the bees to winter on. We have here good results from a bar-frame hive. I confess to a little astonishment that Mr. Mann after all "considers this has been a poor honey season." The comb and honey were sold for £9 11s. Mr. Anderson speaks of the season as a "most productive one," and hundreds of Scotch apiarians have found it so. We have now before us the record of results most encouraging and satisfactory from three different kinds of hives. I am greatly pleased with them all. If viewed in a good light perhaps we should find in them more likeness than contrast.

When the weight of the straw hive first appeared Mr. Raitt wrote to me asking or suggesting that the profits or money value of the contents be given. He was told that no figures of profit had come from Carluke, and therefore I could not give them. When the letter of Messrs. Raitt and Mann was published containing the money profits of the bar-frame hive, it was sent in a letter to Mr. Rennie, who returned it with a reply in which he says, "I object to giving money particulars about my bees for publication, although I could tell a far greater fact than Mr. Mann, and plenty of other bee-keepers in Carluke could do the same." This is certainly encouraging to all apiarians. Having Mr. Mann's profits before us we may compare the results. Mr. Mann's hive yielded 122 lbs. of comb and 30 lbs. of run honey. The comb at 1s. 4d. per pound would realise £8 2s., and the honey at 1s. per pound would raise the amount to £9 12s.—only 1s. more than was realised. The prices obtained by Mr. Mann are rather disappointing to me, for I was told two years ago that the honeycomb of sectional supers was sold at 1s. 8d. per pound. If the comb in sections 1 or 2 lbs. in weight does not fetch a higher price than comb in common supers the introduction of sectional supers will be of very little value. The Carluke bee-keepers obtain 1s. per pound for run honey and 1s. 3d. for honeycomb in supers. These prices have been obtained regularly for fifty years.

I now come to the interesting point of comparing the money value of the outcome of the Stewarton hive weighing 481 lbs., and the straw hive weighing 474 lbs. I do not know the weight of the hives and bees in either case, but let us suppose that the bees and empty hives would weigh in each case 120 or 130 lbs. I have no disposition to overweigh or underweigh anything. After the weight of hives, boards, and bees have been taken from the gross weight one can pretty accurately estimate the weight of honey in the contents of the hives. Every 7 lbs. weight of contents yields 5 lbs. of honey. At this calculation the honey of the Stewarton hive would weigh about 250 lbs., and the honey of the straw hive about the same. Now 250 lbs. of run honey at 1s. per lb. gives considerably more than Mr. Mann's £9 11s.; and if much of the contents were sold as honeycomb at 1s. 3d. per lb. the bar-frame hive would be found farther behind still. If the honey and profits of the three hives could be fairly weighed the probability is great that the bar-frame hive would rank third best. Notwithstanding I gladly admit that both Mr. Raitt and Mr. Mann are advanced, clever, and successful bee-keepers. In my opinion Mr. Raitt has done more to improve the bar-frame hive and manage it practically and scientifically than any other person in Great Britain. In the excess of his enthusiasm for "modern bee-keeping" as he calls it, he appears occasionally to go a little too far. For instance, he and Mr. Mann say "that the time for pitting straw hives against bar-frames was over long ago." May I ask, How long ago? When and where has the bar-frame hive carried off the palm of greatest weight or profit? Mr. George Fox of Kingsbridge, Devon, ventured to fit the straw hive at the Crystal Palace shows against all comers, and on every occasion he carried off the honours against the bar-frame hive.

About two years ago Mr. Ollerhead delivered a lecture on bees at Wimbledon, which was published in many periodicals. In this lecture Mr. Ollerhead says, "he prepared twenty hives for winter, some of them were bar-framers, some Stewartons and

Carr-Stewartons, and some Pettigrews. To my mind the best hive for quantity of honey, either in the comb or in supers, is the large straw hive. I have visited every show of the British Bee-keepers' Association, and have so far failed to find any hives better adapted for the profitable management of bees than the Pettigrew hive." From it, he says, "he has taken considerably more than the returns from any other hive on the same ground and under the same treatment." It distresses me to quote such a passage as this in which my own name is mentioned, but I do so now in the interests of the bee-keeping community. So far as my reading and observation extend there is very little room for the assumption of superiority. Two years ago Mr. Raitt informed me that he had made £40 from twelve hives, and about a quarter of this sum was taken from one of them. His profits or income was at the rate of £3 7s. per hive. The same season some apiaries of straw hives at Carlisle made or yielded £4 6s., and two bee-keepers made at the rate of £5 per hive. Probably Mr. Raitt increased his stock.

In closing these remarks I thank Mr. Anderson for the record of the Stewarton hive at Arran, and Mr. Raitt for the report of the bar-frame hive at Blairgowrie. Most of all I thank Mr. Rennie for what he has told us. His few words contain the best teaching of all successful schools. If the readers of the Journal have any of the three hives in their gardens, and if they carry the simple lessons of Mr. Rennie into practice with energy, it is certain that they will become successful apiarians. The challenge of Messrs. Raitt and Mann will be noticed by-and-by.—A. PETTIGREW.

P.S.—In justice to Mr. Rennie and the straw hive I confess I forgot to state he told me in his letter that the weight of his hives was taken before the end of the honey-gathering, and that as some hives gained 6 and 8 lbs. each afterwards he thinks his sum total would have been 20 lbs. more if he had had time to weigh them again.—A. P.

CONGRESS OF GERMAN AND AUSTRIAN BEE-KEEPERS.

THE Exhibition being now complete I will attempt a description of some of the more prominent exhibits. At No. 1 in the catalogue was a list of a natural history collection belonging to Dr. Pollman of Bonn, who for years past has followed the excellent idea of fitting up a bee cabinet which enables the visitor to follow and to study a colony from its cradle to its grave. In this cabinet nothing which concerns bee-keeping and bee life seemed to have been omitted. All the enemies of bees which endanger their life or interfere with their work were there. Near the above interesting display was the stand of Mr. Aloys Anton Schlösser, of Ehrenfeld near Cologne, well known as an able bee-master as well as a cultivator of Apples and other fruit. This gentleman exhibited about 1000 lbs. of extracted honey in 137 glasses, gathered from White Clover, Buckwheat, and blue Cornflower. In addition to this he exhibited bee furniture he has had in use in his apiary for the last twenty years; also a cake of beeswax weighing 70 lbs., and a comb-holder with honeycomb. In the garden Mr. Schlösser exhibited four double or twin hives which have been in use for years inhabited by colonies of German, Carniolan, Italian, and Cyprian bees respectively, which were much admired.

The exhibits of Pfarrer Daniels of Troisdorf were both numerous and tastefully arranged. What particularly struck visitors were his beautiful casts of wax. His assortment of honey, perhaps one of the largest in the Exhibition, comprised honey gathered from the Cornflower, the Bird Cherry tree, White Clover, Seradella Rape, Gooseberries, Lime trees, Heath, and other flowers. The samples of honey shown by Mr. Urban Weissweiler, schoolmaster of Dransdorf near Bonn, were also very good. Mr. Carl Regener, mechanical engineer of Bayenthal near Cologne, exhibited an observatory hive containing four combs placed vertically with a colony of Cyprian bees headed by a fine young queen. This was the only hive with living bees in the hall, and very closely resembled those commonly exhibited in this country. The bees found exit to the garden through a hole in the window-pane, a long tunnel covered with glass enabling the visitors to watch the labourers passing out and in. Mr. Regener had other beautiful objects—a splendid assortment of honey, in the midst of which is a crystal bowl of very fine honey taken from the comb by means of the extractor. He also showed a large quantity of bee furniture.

Almost all the hives shown were of straw and had small frames. These frames are generally placed across the entrance; the back opens so that they are drawn out either with the hand or with a pair of pincers constructed for the purpose, and are considered by German bee-keepers easy of manipulation. There were a great number of them very similar in form. There was, however, one frame hive of wood exhibited by Mr. F. Koester of Simburg, of very ingenious construction. It was something like a large Huber frame hive, and the frames were kept close to each other by means of two iron rods screwed tight with bolts. This gentleman had been living in America, and returned to his native country imbued with inventive ideas, for he also produced a honey-extractor of novel construction, the motive

power being simply friction. By drawing a long piece of wood against the wheel great rapidity and ease of motion were obtained. Mr. L. Eyllenfeld of Frankfurt had a very ingenious hive tenanted by living bees in the garden, very much like Gravenhorst's, with the dome-top frames. These drew out bodily at the side, and run on rollers very smoothly, and the frames are easily drawn out and returned. Dr. Dzierzon exhibited an Italian queen, which was priced at 12s. The bees were in a small glass case, and covered only one side of the comb. They were bright-coloured bees, and the queen a fine one. Herr Vogel had two cases of Caucasian bees with distinctive marking. These bees, like the Carniolan, are valued for their docile character.

The show of honey-extractors was large; some of them of novel and ingenious construction. Many wire masks to protect the face whilst manipulating found places on the table, also perforated zinc with three-sixteenths of an inch openings in considerable quantity, as well as cages for imprisoning the queen when the honey-gathering season is in full force, so that the cells may not be filled with brood, but with nectar. This mode of checking the queen in using her great functions of egg-laying is occupying much attention in Germany, and will no doubt also claim the increased attention of English bee-keepers. By a judicious regulation of the vast multiplying powers of the queen sufficient bees may be in the hive to keep up its strength, and at the same time not become so overpowering in numbers as to swarm or crowd and hang at the entrance, thus to impede the working of the bees, which in the ordinary course is so frequently the case. In German apiaries run or extracted honey is more generally produced than super or comb honey. This, no doubt, is so because honey in June is the more marketable article.

Although bee-keeping in the district of Cologne is said to be very much neglected, nevertheless many excellent things were to be met with from this neighbourhood. Even envious tongues could not but speak well of the glass bell on stand filled with honeycomb, of the samples of wax, the honey in glass jars, and the tasteful arrangements of the exhibits of Mr. Henry Beckers of Cologne. The same remark applies to the produce of bees and the bee furniture of Mr. Nicholas Assenmacher, jun., likewise of Cologne. The latter exhibited also under glass, hermetically closed, as a specimen a comb containing foul brood. I might further mention the following exhibitors—Mr. Von Der Goo, schoolmaster of Steinfield in the Eifel, heath honey in large combs; Mr. George Bösch of Harxheim near Mayence, a very large glass bell of fine honeycomb; Mr. Otto Schutz of Buckow, a large quantity of comb foundation, very well manufactured, and some was on wood. Many other exhibits might be mentioned, but perhaps the above will suffice to illustrate the general character of this interesting exposition of bees and the apparatus connected therewith.

The articles I exhibited were those well known as manufactured and sold by my firm; our safety smoker, Mr. Cheshire's "rakes" for fixing comb foundation in frames, with dozen elegant American section of honeycomb from Mr. Cowan's apiary, were among the collection which attracted much attention as illustrative of English appliances in bee-keeping, and for which I was awarded a silver medal.—ALFRED NEIGHBOUR.

(To be continued.)

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain.
1880.	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.				
		Dry.	Wet.			Max.	Min.	In sun.	On grass.			
Dec.												
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.		
Sun. 19	29.515	40.8	37.8	W.	41.3	44.2	35.6	61.4	34.2	0.455		
Mon. 20	29.479	35.9	35.8	N.E.	41.2	41.1	34.2	41.0	34.2	0.242		
Tues. 21	29.850	36.8	35.4	N.W.	40.1	39.5	32.1	62.1	28.8	0.188		
Wed. 22	29.838	41.0	40.0	S.	38.8	52.2	29.5	51.4	25.8	0.405		
Thurs. 23	29.571	49.8	47.8	S.W.	41.2	54.0	49.4	71.4	38.4	0.028		
Friday 24	29.154	45.7	45.1	S.W.	43.0	52.0	45.3	80.0	41.0	0.010		
Satur. 25	29.483	31.2	29.3	W.	41.9	39.0	29.7	67.3	25.8	—		
Means.	29.556	40.2	38.7		41.1	45.7	35.3	62.1	32.6	0.328		

REMARKS.

- 19th.—Stormy with slight rain early part of the morning; fine after 11 A.M., with bright sunshine; overcast evening.
 20th.—Rain during night; snow commenced at 0.45 and continued until 3 P.M.; damp and cold rest of the day.
 21st.—Fine, bright, and cold; slight fog in evening.
 22nd.—Overcast with steady rain until 5 P.M.; fine starlight evening.
 23rd.—Very fine and mild; rain in evening.
 24th.—Fine early; rain from 8 till 9.30 A.M.; very bright and fine; from 10 A.M. till 2 P.M. overcast and very dull for an hour; clear and bright till 4 P.M., then heavy shower; fair but damp evening.
 25th.—Fine, bright, and clear throughout; almost uninterrupted sunshine from sunrise to sunset.
 A wet week and rather cooler than the previous one, but still slightly above the average temperature.—G. J. SYMONS.

COVENT GARDEN MARKET.—DECEMBER 29.

THE holidays have completely checked business, nothing of any note taking place in our market. The prices remain the same as last week.

